THE ART OF
CUPHEAD

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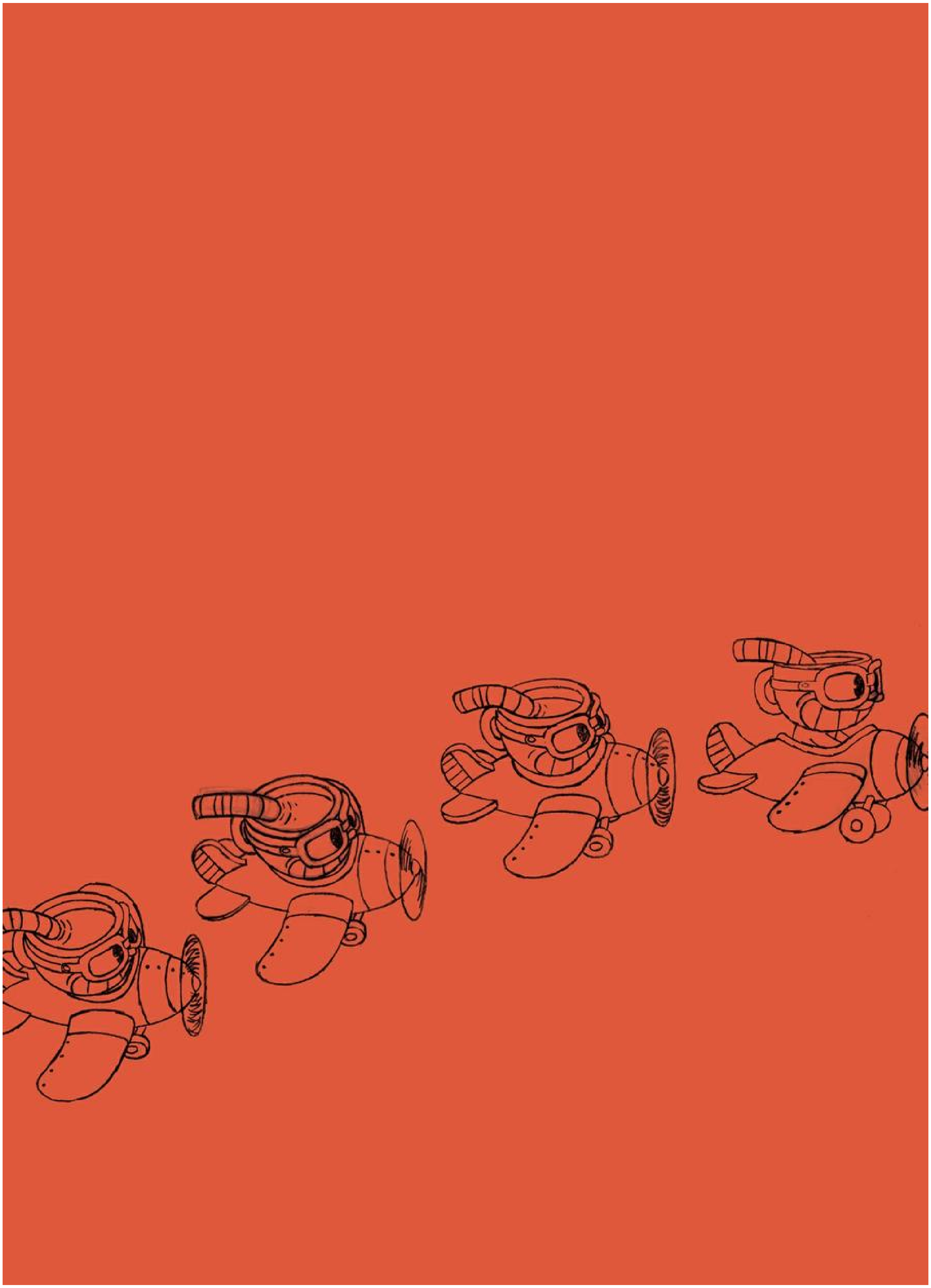
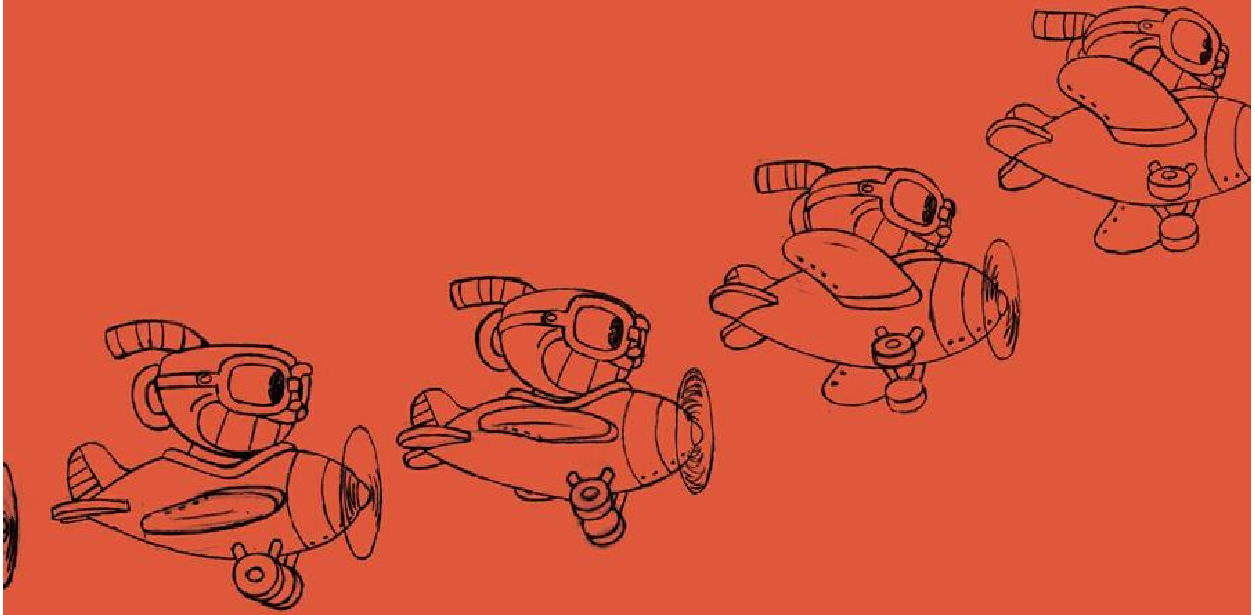
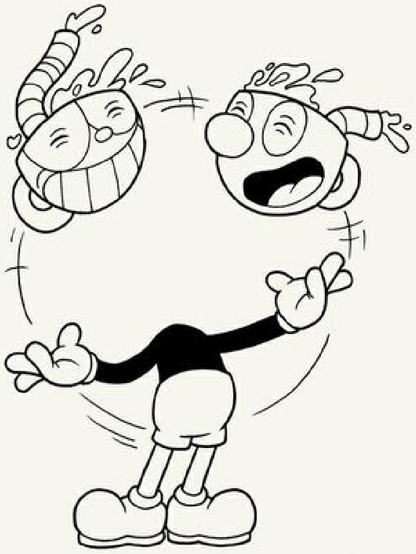
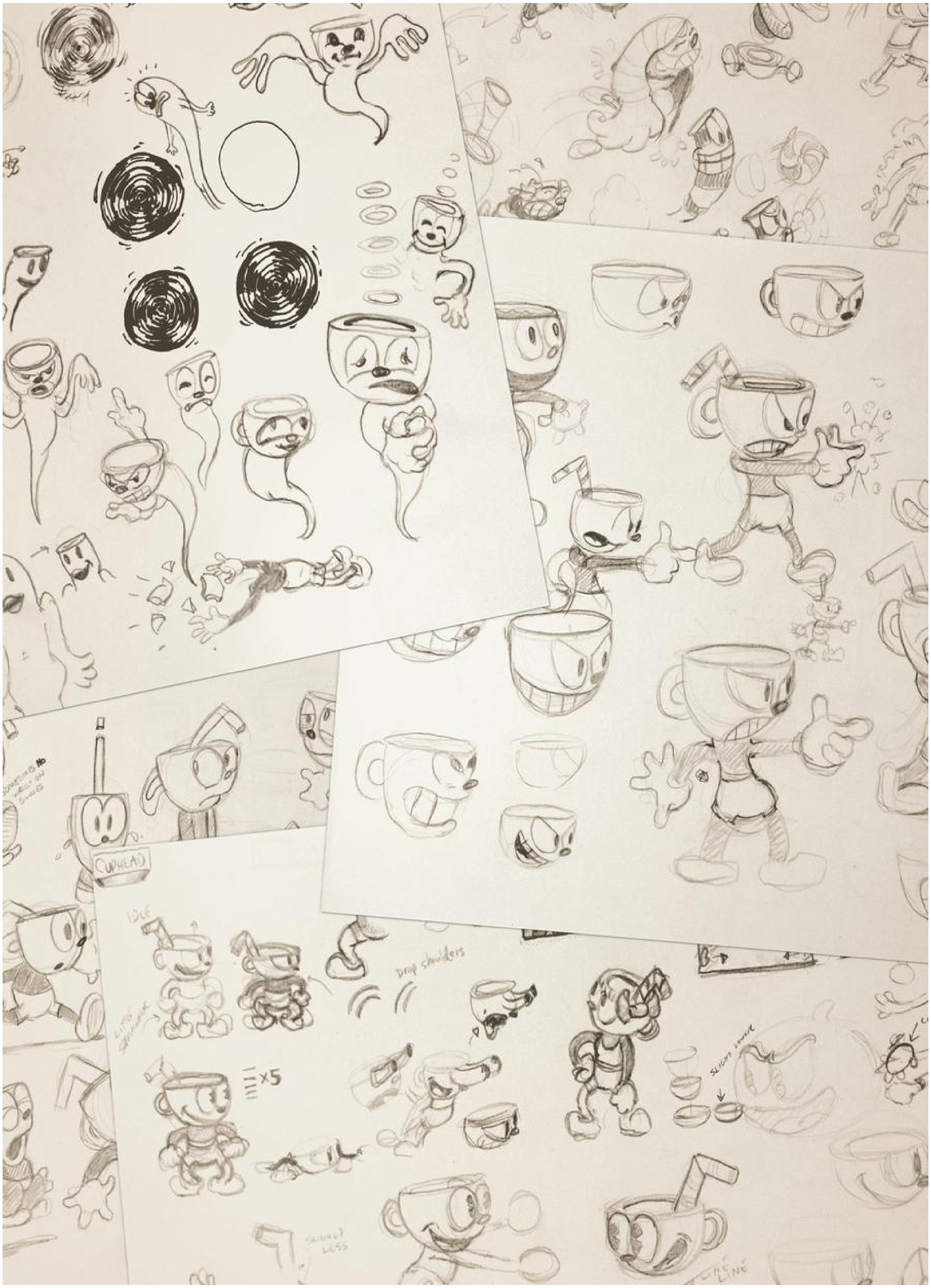




CUPHEAD




SOMETIMES NO WRIST ON GLOVES
CUPHEAD
IDLE
LITTLE SQUASH
Drop shoulders
x5
SLIGHT LOWER
SQUINT LESS
LINE LINE

THE ART OF
CUPHEAD

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Published by Dark Horse Books
A division of Dark Horse Comics LLC
10956 SE Main Street
Milwaukie, OR 97222

DarkHorse.com

Facebook.com/DarkHorseComics
Twitter.com/DarkHorseComics

First edition: March 2020
ISBN: 978-1-50671-320-5
Digital ISBN: 978-1-50671-321-2

1 3 5 7 9 10 8 6 4 2
Printed in China

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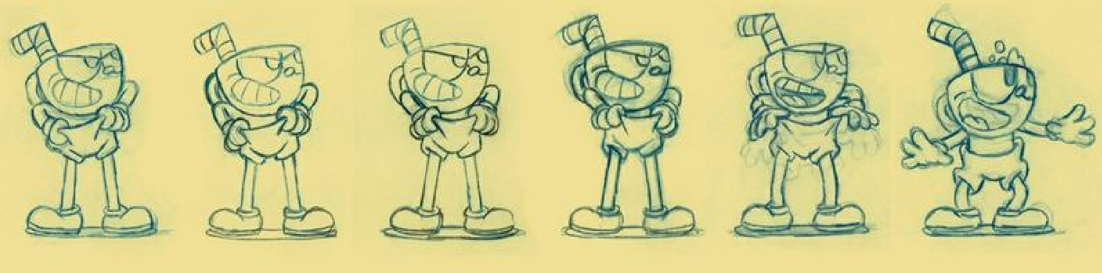
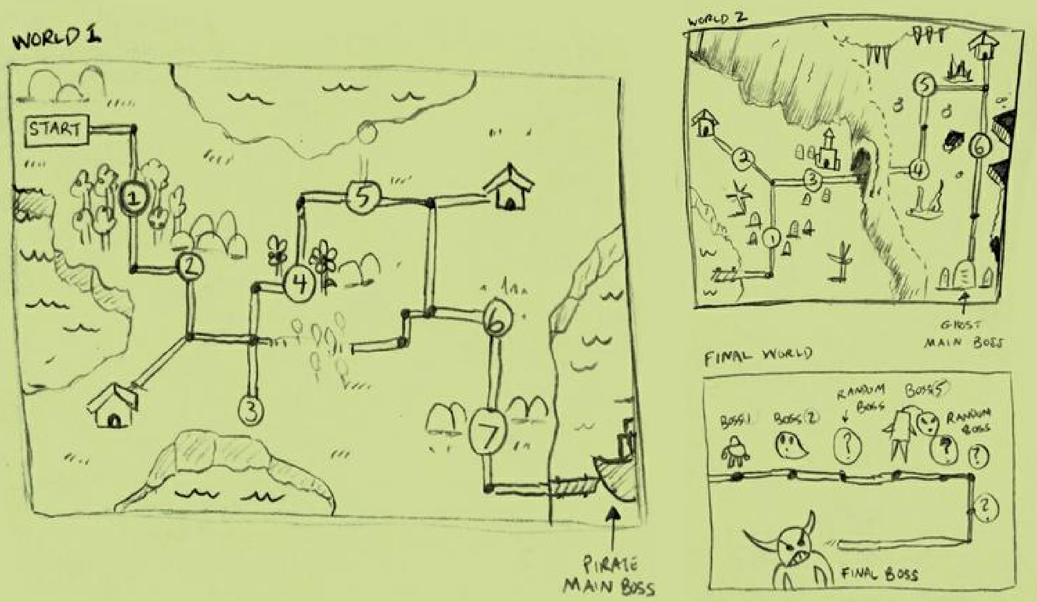
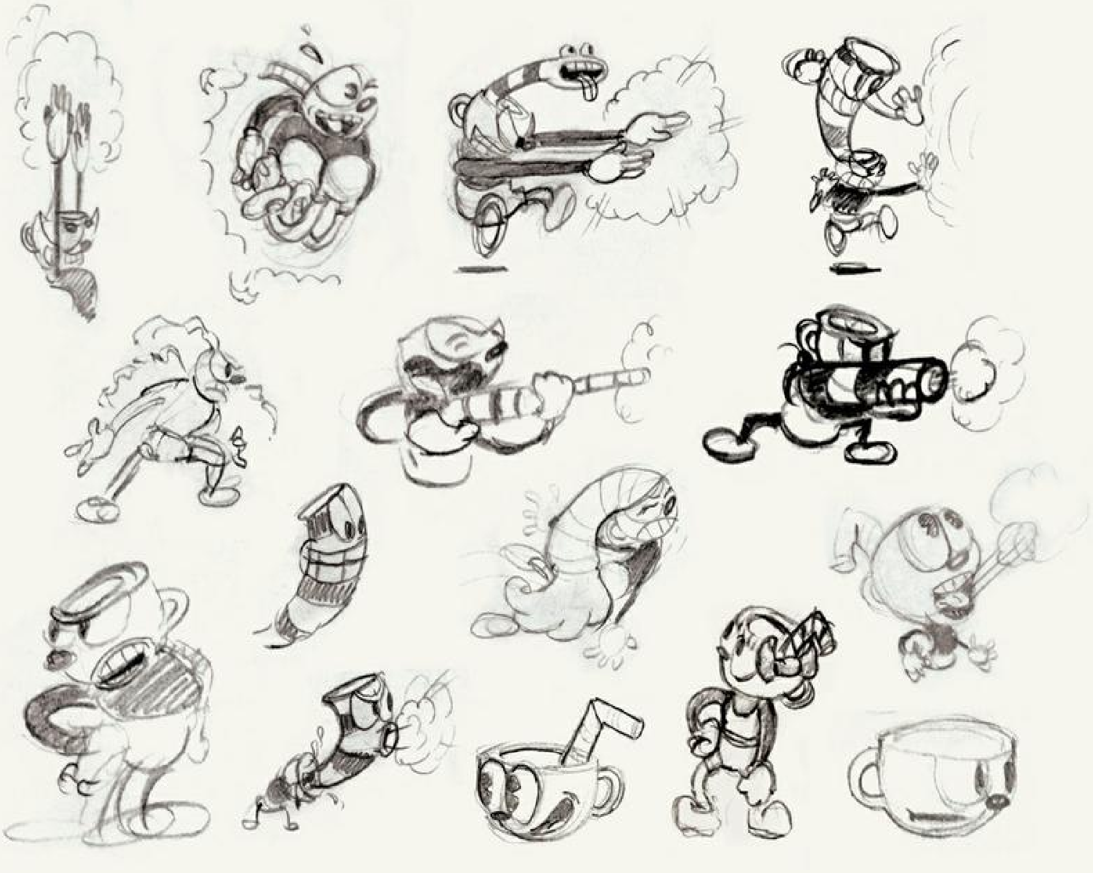
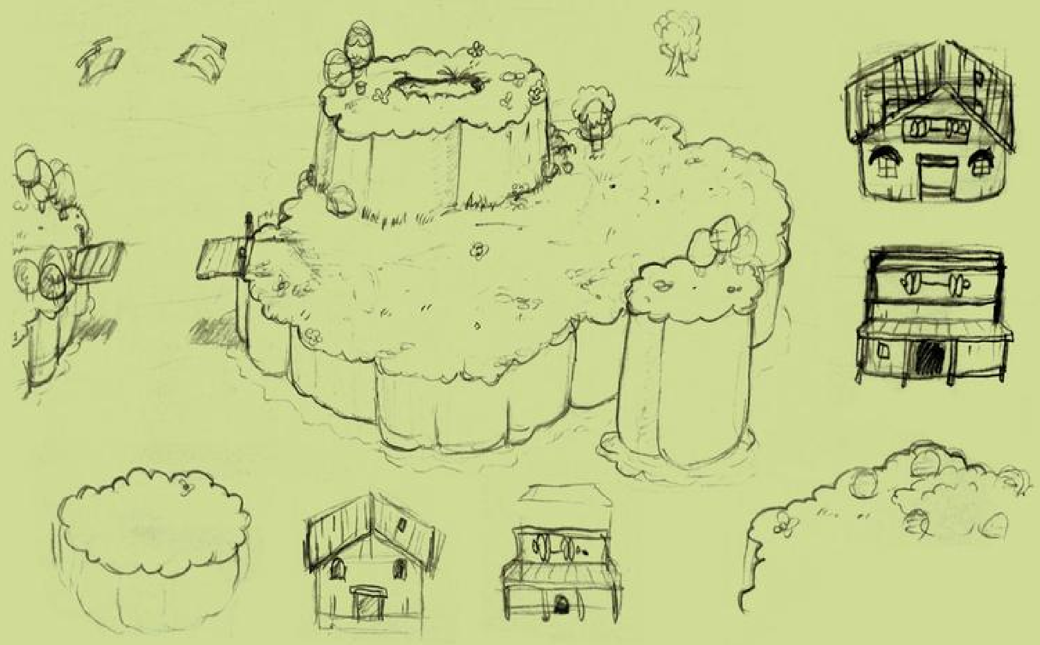



WORLD 1
START
1
2
3
4
5
6
7
PIRATE MAIN BOSS
WORLD 2
2
3
4
5
6
GHOST MAIN BOSS
FINAL WORLD
BOSS 1
BOSS 2
RANDOM BOSS
BOSS 5
RANDOM BOSS
FINAL BOSS





Introduction

WE NEVER PLANNED FOR *Cuphead* to become this big. We just kept making games the way we've always made them. At ten years old, when we weren't playing together on our Sega Master System, we'd be having ad hoc drawing competitions with our friends. Sitting on the carpet with brown construction paper and pencil crayons, we'd see who could draw the most fearsome and powerful monsters. Jared would be the judge.

The games became more elaborate as we got older. Chad would set up castles in the living room—tiny constructs made of marbles, surrounded by protective bastions and foot soldiers. He'd task one of us with knocking them down with a single shot from three feet away. Four feet away. Ten feet away. We'd come up with increasingly arcane rules to find ways to keep the game interesting. Let's call it play testing.

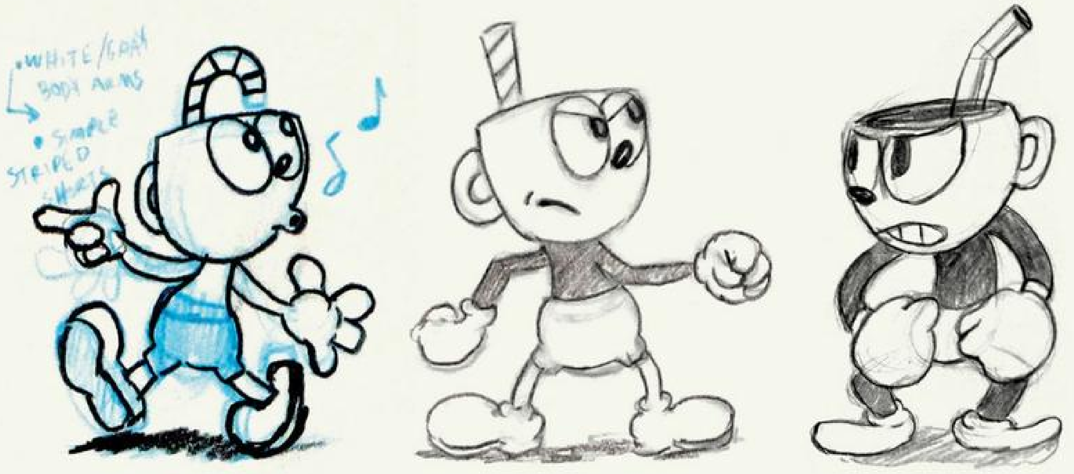
We'd map out elaborate board games with multiple twisting paths. Crude crayon dragons and colorful pastel lava beasts ready to send a player back to the beginning for not rolling the perfect sequence of doubles. They were always impossibly hard. (We'd like to think we've changed, but sometimes the evidence to the contrary is undeniable.)

As we got older, the mediums evolved but the games continued. From role-playing adventures made in QBASIC to samurai side scrollers on Sony's hobbyist development hardware the Net Yaroze, we'd always be tinkering away at something. As adulthood came, we became professionals in our own careers, far away from one another. But the idea of building a full-fledged video game like the ones we played on those classic systems was always there, dancing around in the back of our brains.

The boom of independent games around 2010 lit a fire under us. It was impossible not to notice all of these artistic and innovative titles coming from teams of two or three people. Living 3000 kilometers apart, we would talk on the phone about really giving it a real shot. But what to make? It was just the two of us, and aside from a little bit of Flash ActionScript knowledge, neither of us were really programmers. So we started out with modest ambitions, coming up with concepts for simple puzzle games that might work on mobile devices.

But even as we iterated on these early ideas, we kept coming back to a run-and-gun concept that we had modeled after the *Contra* and *Gunstar Heroes* games we loved as kids. We missed the fast-paced twitch action, the giant bosses, and the pick-up-and-play nature of the genre. We knew that if we were going to actually make a run at this—spend all that time and labor and money on it—that it was going to have to be something that we loved. So we jumped in.

We knew we'd need a visual hook. Something to really set our game apart from the ever-increasing number of great indie games coming out. We'd always been drawn to physical mediums for art—visuals where you can see the human imperfections in the work. From pencil crayons to paper craft, we wanted everything to look handmade. We did art tests of all kinds. Then, at one point, we tried a simple rubber-hose-style animation based on the black and white cartoons we used to watch on worn out VHS tapes as kids.



That style was it. The one. We just knew. No matter what else we tried after it, nothing lit up our imaginations like the twisted, pliable cartoons of the early Fleischer and Disney era. It felt triumphant to find our style, but it was scary. In the 1930s, animation was almost always done on "ones," meaning a unique drawing would be required for all twenty-four frames per second of a film reel . . . and Chad was the only one doing art!

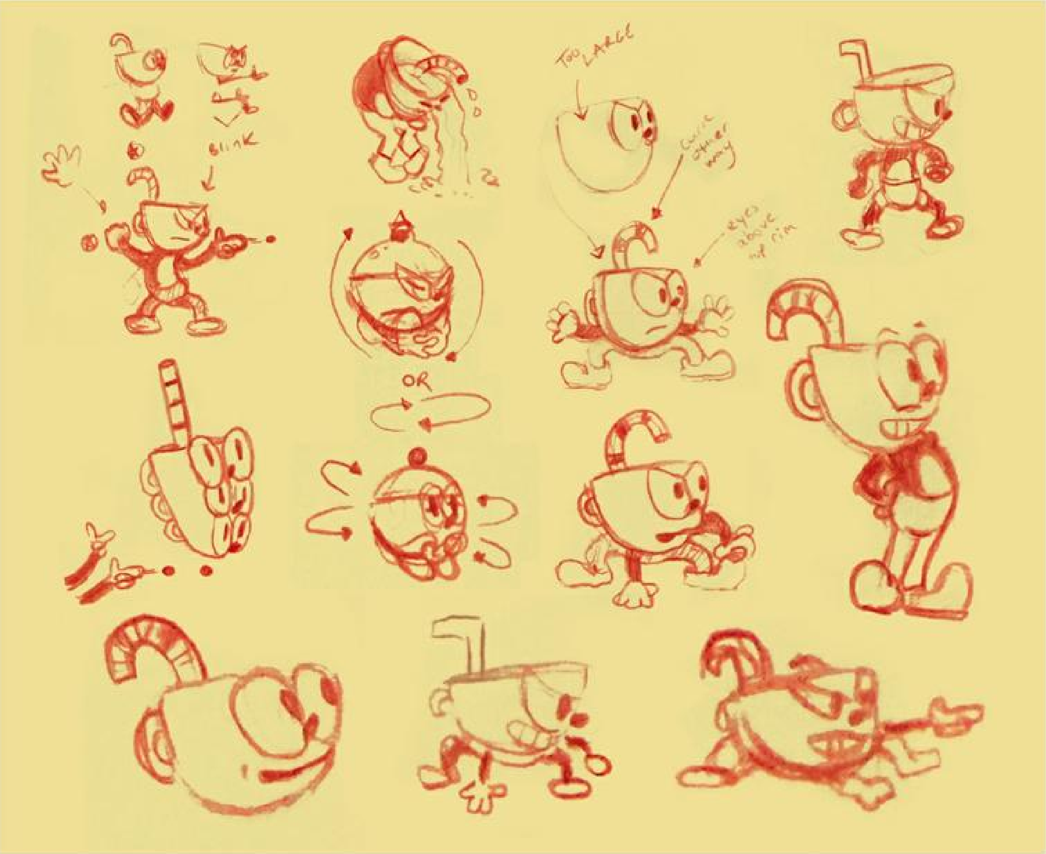
It wasn't until 2013 that we began development in earnest, scaling down our day jobs to part-time. Around this time, Marija "Maja" Moldenhauer (who happens to be Chad's wife) joined the team, and we hired a programmer to help cobble together a single-boss demo of the game for the Independent Games Festival. Serendipitously, it was the posting of a clip from this demo on an internet forum that led to calls from publishers. We were dumbfounded. Knowing there was this kind of interest in the game helped us believe we might have something special on our hands, and throughout the next year, our little studio grew bigger with the addition of trained animators and a painter. By 2015, *Cuphead* had developed a bigger fanbase than we ever could have expected, leading to a pivotal invite from Microsoft to come to Los Angeles to present a full trailer of the game to a crowd at the major gaming expo E3.

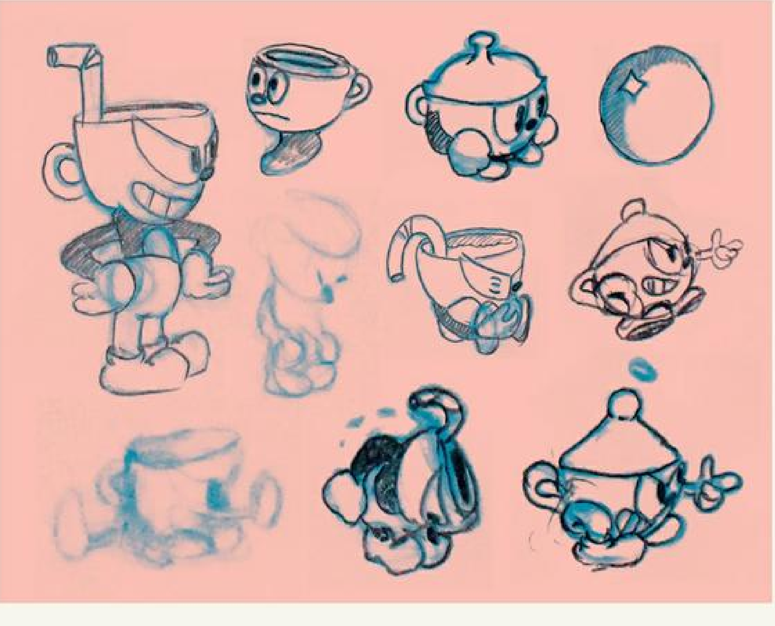
We received more warmth and excitement than we ever could have hoped for, and that's when it hit—that's when we saw glimpses of what *Cuphead* could truly be. This fueled us to make a big, scary decision: I mortgaged my home, and Chad & Maja mortgaged theirs, and together we invested the funds into bringing on a full team of people to bring *Cuphead*'s dream scope to life. Artists, programmers, musicians, foley artists—each more talented than we could ever have conceived of when our small game first started. Passionate people that put their hearts and souls into everything they did, and who put their own stamp on *Cuphead* along the road to its release.

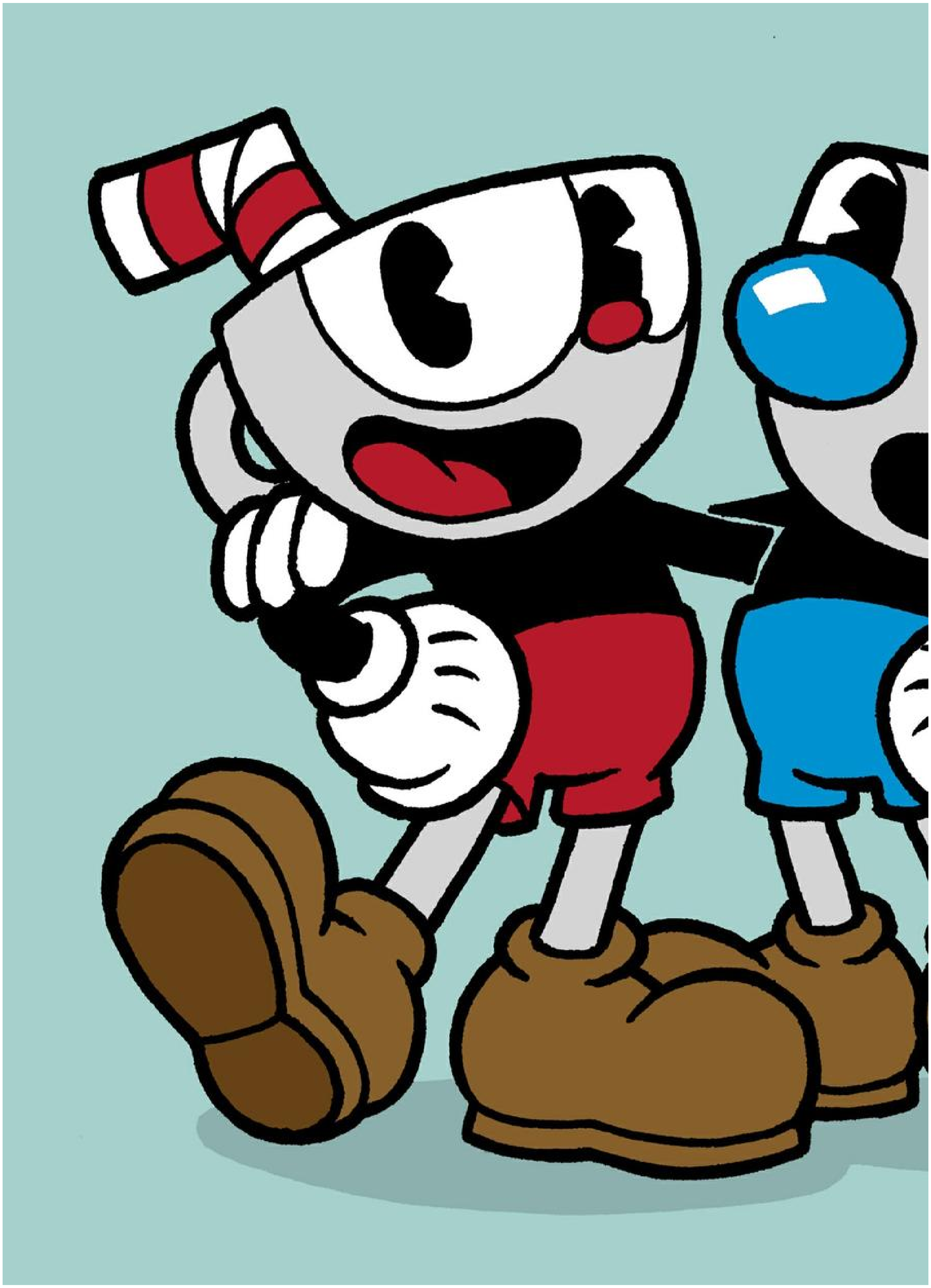
And what a road it was. The next two years were a blur—a madcap scramble towards our eventual September 29, 2017, release. By this time, we had formally quit our jobs so we could be there alongside our team pouring everything we had into *Cuphead*. Working mostly remotely, Studio MDHR was filled with a collection of family members and teammates who felt like family, leaning on one another as we all pursued this wild idea that had never been done before.

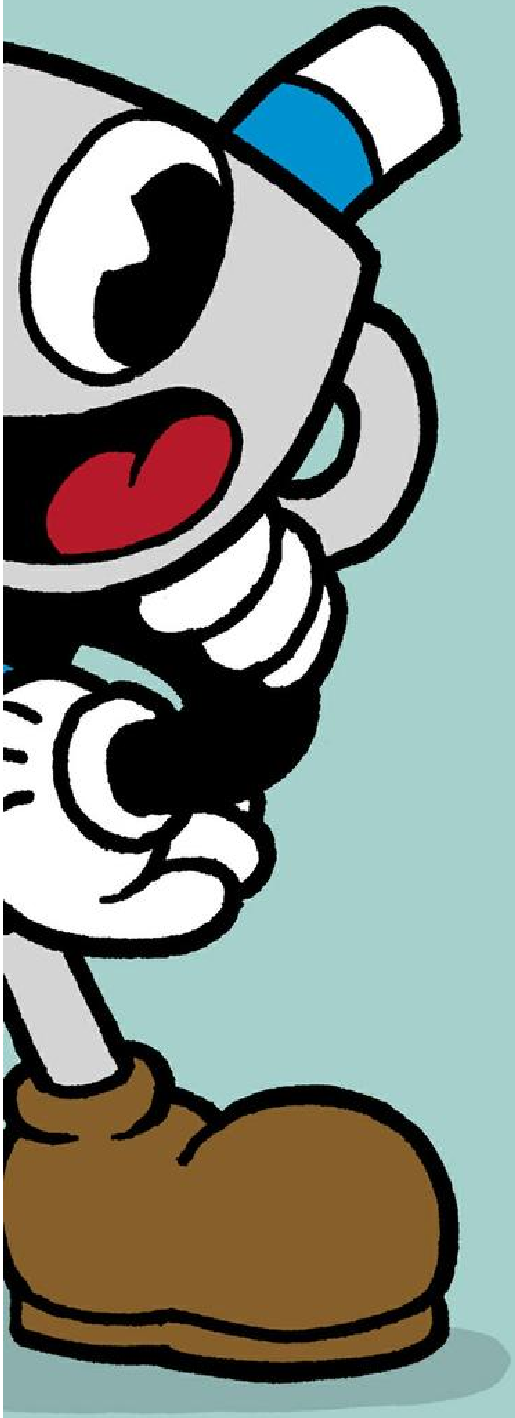
So as you join us for this look back on the big little animated adventure that changed our lives, and see us refer to "we" throughout, know that we don't just mean the two of us. We're talking about the entire team at Studio MDHR, past and present. The amazing collection of artists, animators, engineers, producers, musicians, sculptors, testers, and writers without whom none of this would be possible. Thank you all, for sitting with us on the carpet, and drawing fearsome and powerful monsters.

Chad & Jared Moldenhauer
Studio MDHR


blink
TOO LARGE
curve other way
eyes above cup rim
OR







Chapter I:

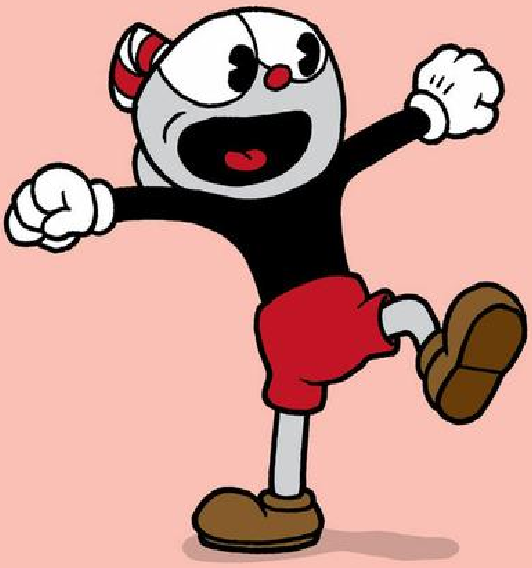
Our Plucky Heroes

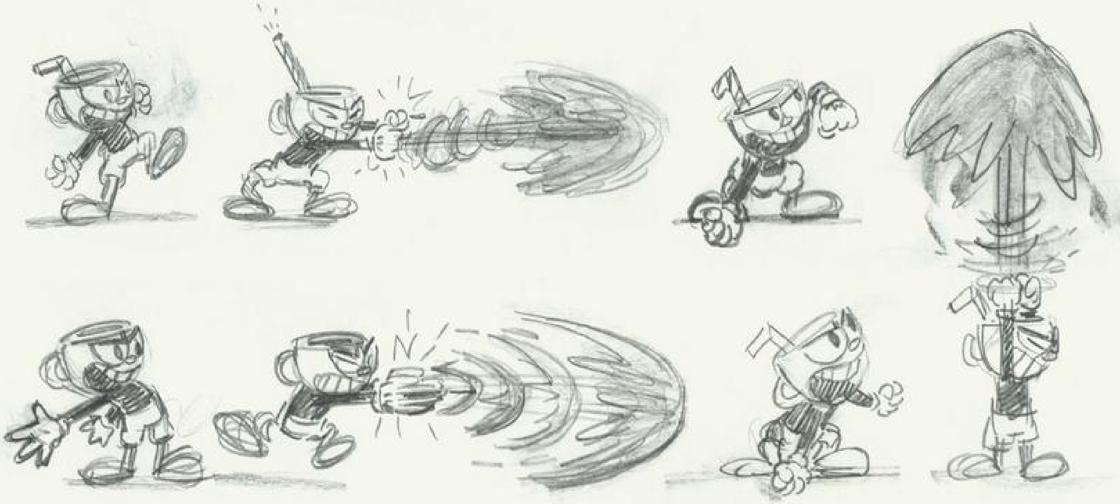
THE ADVENTUROUS CUPHEAD and affable Mugman are not only brothers, they're best buds who have one another's backs through thick and thin. In a game that owes so much to the classic toons of the 1930s, these two are our tribute to the plucky heroes of that era that made us laugh and kept us entertained growing up. As we set out to find the identity of our protagonists, we steeped ourselves in the physicality of icons like Mickey, Bimbo, Oswald, Gabby, and Felix the Cat. With these ubiquitous characters as a basis, we began working on concepts for own modern day 1930s cartoon lead.

Across more than three hundred iterations, we explored everything from animals to magical humans, in search of a concept that would feel at home inside a classic cartoon, but which wouldn't be derivative and indistinct. Sometimes in the middle of a brainstorming rut, we even drew ideas that were intentionally off base, but in the end, even those jokes helped lead us somewhere worthwhile—a big lesson to us early on in development was that all art exploration can have a purpose. Once we shifted focus to the idea of embracing the 1930s tendency to give inanimate objects faces and personalities, things came into much sharper focus. Always pushing ourselves to look for a distinct character shape you could recognize instantly, we eventually found one silhouette that stuck out like no other: a cup and a straw.

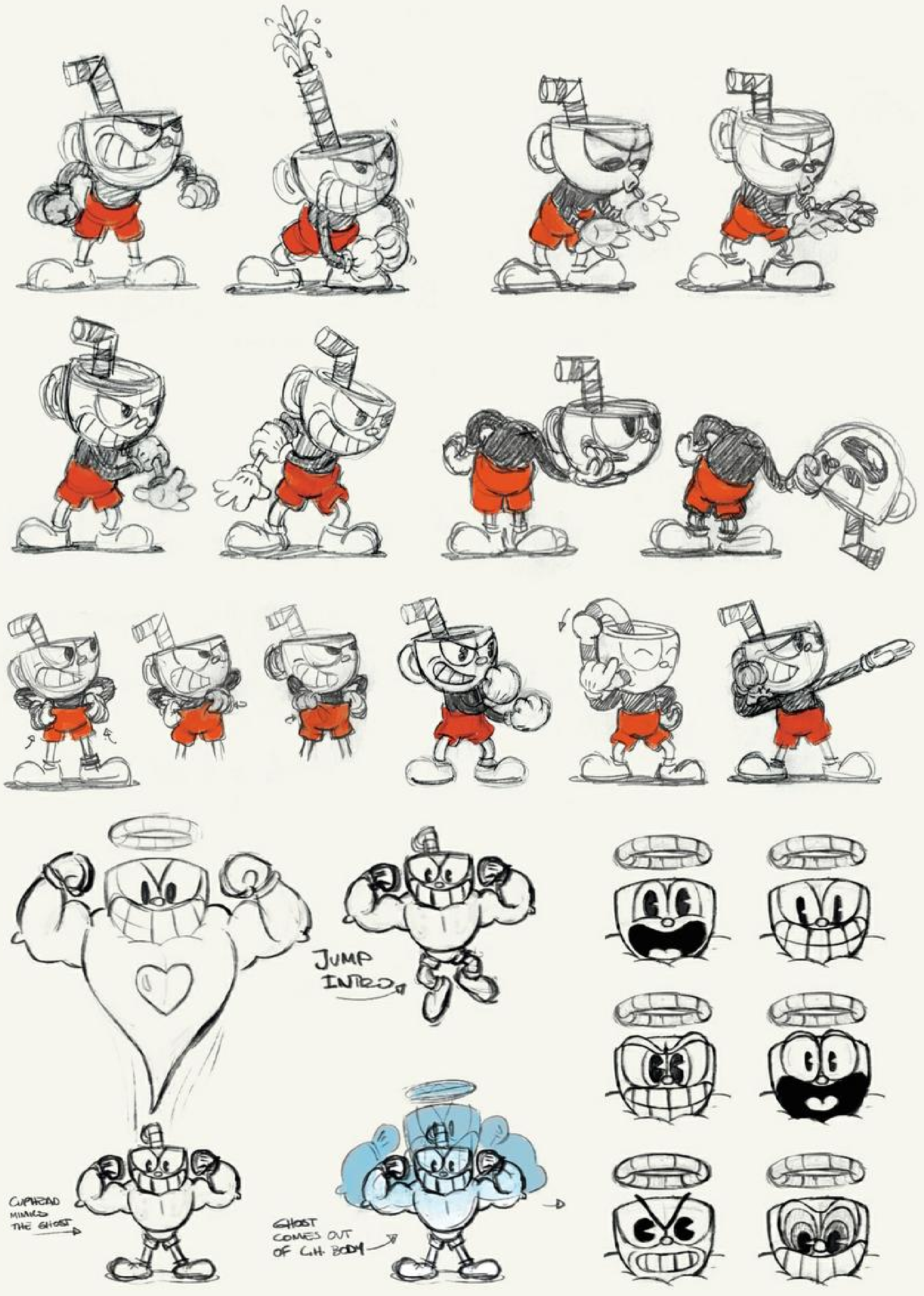
Cuphead

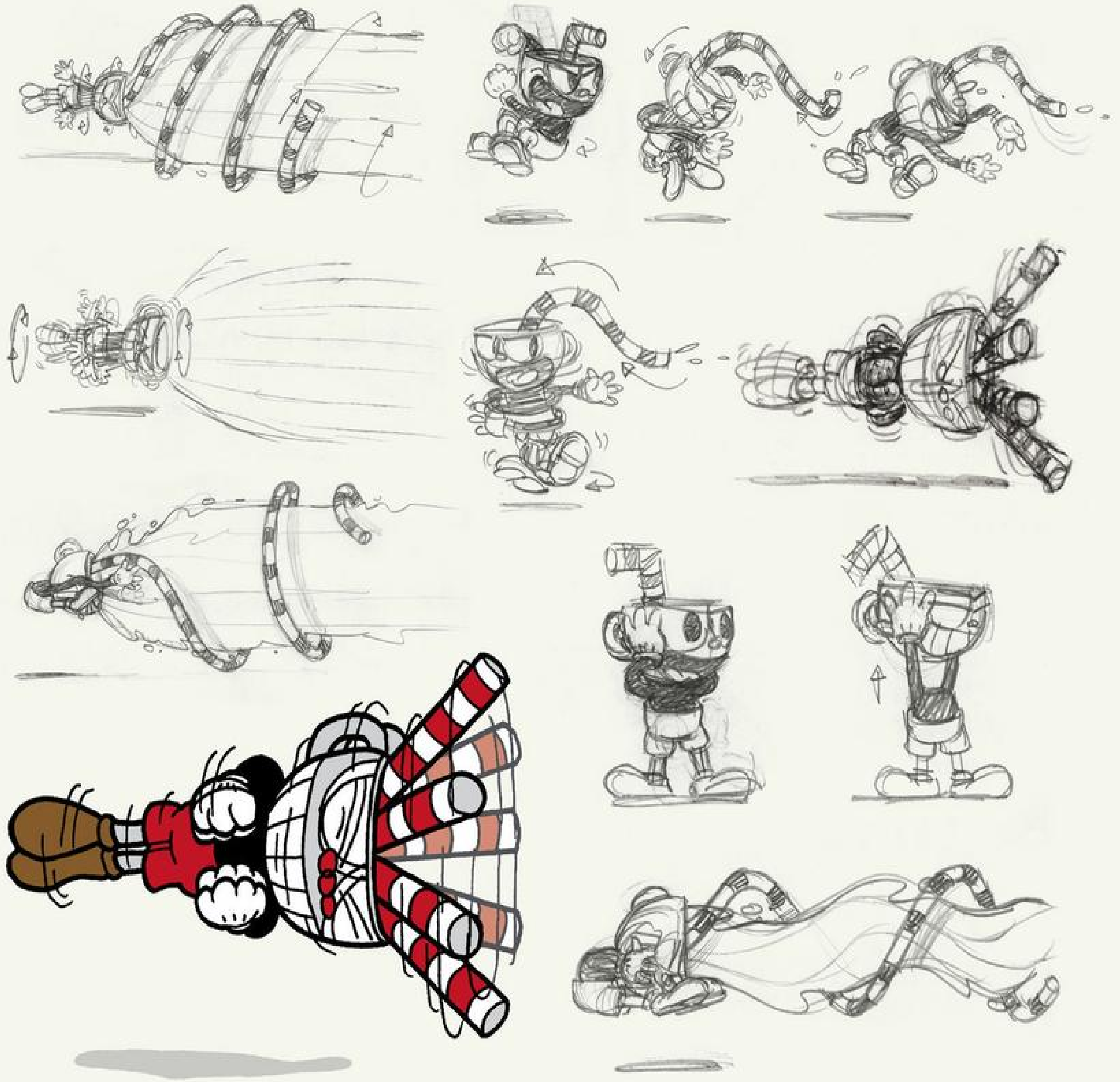
WHILE WE KNEW WE WANTED TO RETAIN the classic "gloves and boots" outfit of the characters he was inspired by, Cuphead's own unique personality quickly emerged as we sketched and refined more concepts of him. Relentlessly optimistic, Cuphead's confidence and drive for adventure can lead him to appear devious, or get him into trouble, but at his core, we always saw him as a kindhearted character who wants to do good—just one who has the tendency to leap before he looks! We also wanted our broader cast of characters to feel like actors in a stage play (something famed Mario creator, Shigeru Miyamoto, is a proponent of), and with Cuphead as the lead, we felt he needed the bravado, and sometimes bluster, of a leading star. Like his limbs, we liked the thought that his personality could have enough flexibility to feel like the kind of "everyman" players could root for and identify with. Notably, we never considered any other name for him (or Mugman), instead hewing close to the way classic toons would use simple, easy-to-remember names that were often two syllables long.





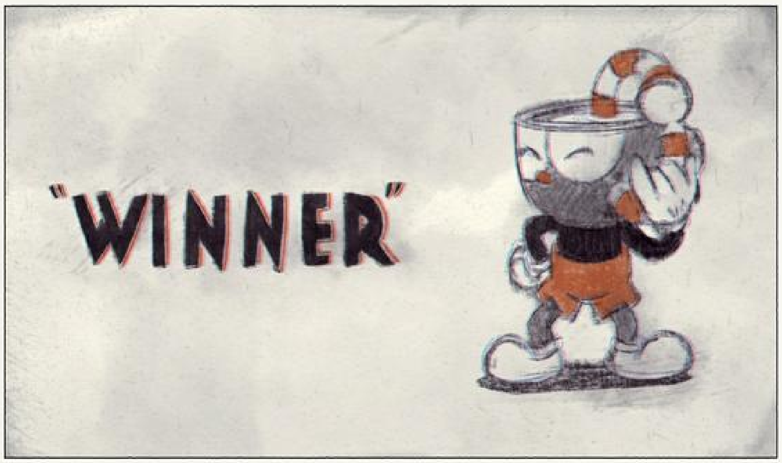
Another big reason we were drawn to the idea of a character with a cup for a head was that it offered us a chance to embrace the whimsical and often weird physicality of the 1930s. Like Felix the Cat could do before him, we quickly found ourselves drawing Cuphead in poses with his head off, using it to greet someone, or juggling it for his own amusement. Through and through, we were keen to push him in the direction of characters from the era, whose limbs could get tangled into a spaghetti mess in one frame, only to have them looking fine and dandy in the next. This also applied to his in-game mechanics, which we wanted to remove from reality while still allowing us to achieve our design goals. Cuphead does everything with his gloves, including firing his signature finger gun pea shot, which we felt added a playful, innocent silliness to the concept of a "shooting" mechanic. We extended this ethos to his powerful "EX" attacks, seen in concept above by animator Hanna Abi-Hanna. (These were his *first-ever* sketches of the character!)


JUMP INTRO
CUPHEAD MIMICS THE GHOST
GHOST COMES OUT OF C.H. BODY

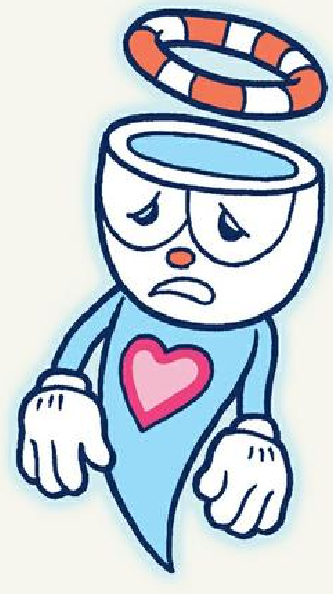


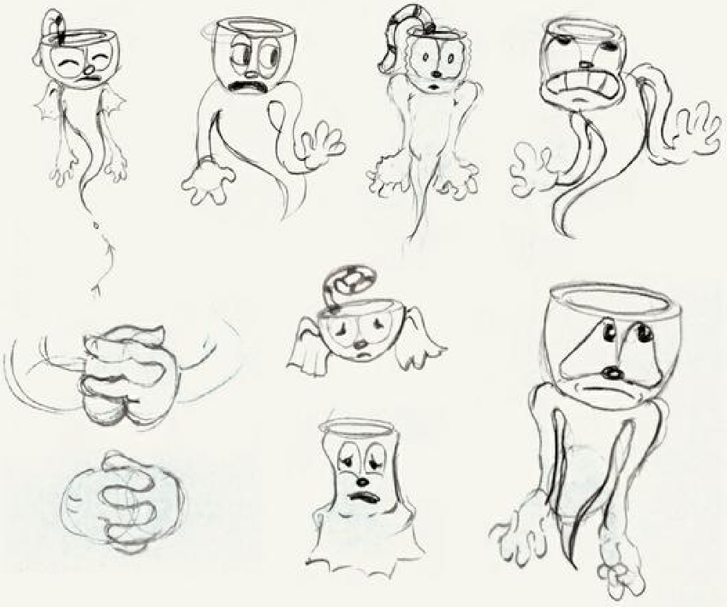
Once the design scope of *Cuphead* expanded to include in-air shoot 'em up boss fights, we started exploring ideas for what our characters might be piloting. Early options included outside-the-box concepts like big cups and odd flying machines, but in the spirit of making Cuphead (both the game and the character) feel like a cartoon come to life, we looked to cartoons of the era, which were rife with fascination for planes. Research included studying Mickey and Popeye in planes, to nail the visual elements that made those scenes sing, and looking to shoot 'em ups like *Thunder Force* and *MUSHA* to see what great games did for in-air player animation.

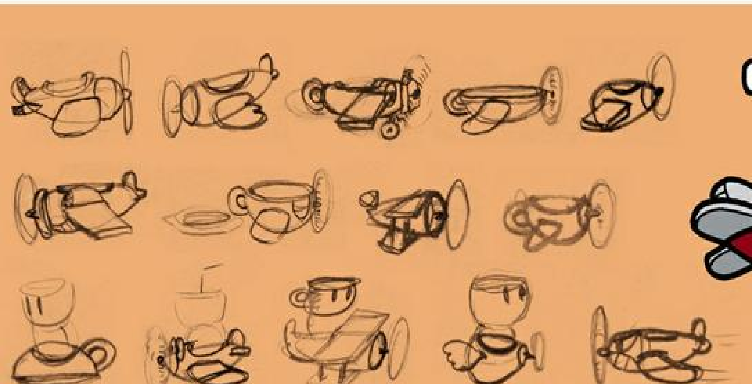
Meanwhile, Cuphead's "Super Art" attacks, seen in concepts by Hanna above, were an opportunity to get quite a bit wilder with our ideas and visuals—even by usual standards! Our first port of call, in keeping with so many of the games we grew up playing, was a massive beam attack, which allowed us to explore Cuphead spinning out of control, his limbs stretching to their limits, and not catching up until the very last frame. While there are many moments throughout boss fights and platforming levels that let us embrace cartoon logic, these Super Arts are certainly some of the most quintessential as far as plumbing the depths of posing and physicality.

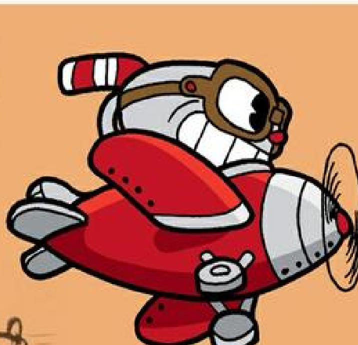


Inspired by the player character death ghost in Sega's Alex Kidd *series, Cuphead's spirit form was the first use of the blue-coded ghost trope seen throughout the game. Drawing influence from Disney's 1937 short* Lonesome Ghosts, *we repurposed Cuphead's straw as a halo for a fun flourish!*



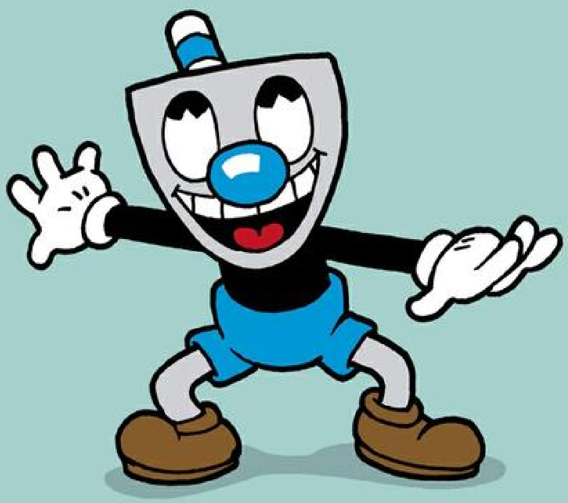


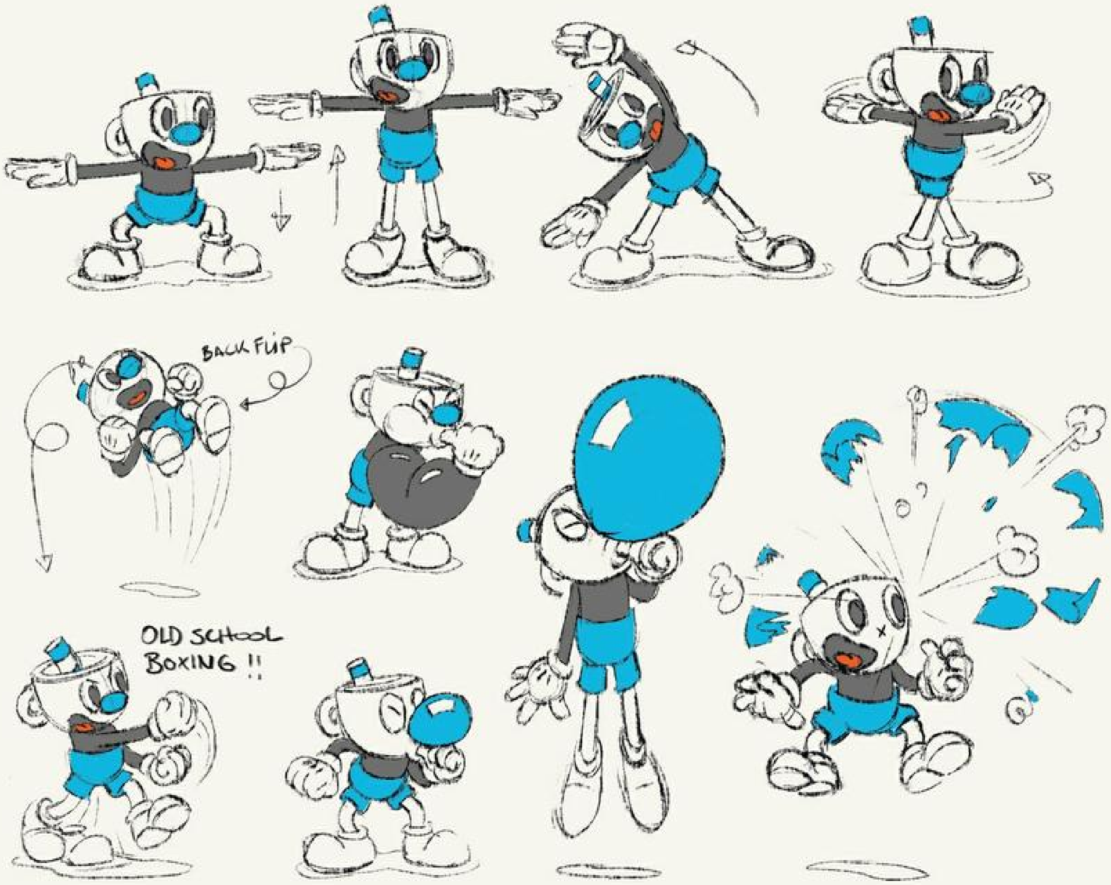


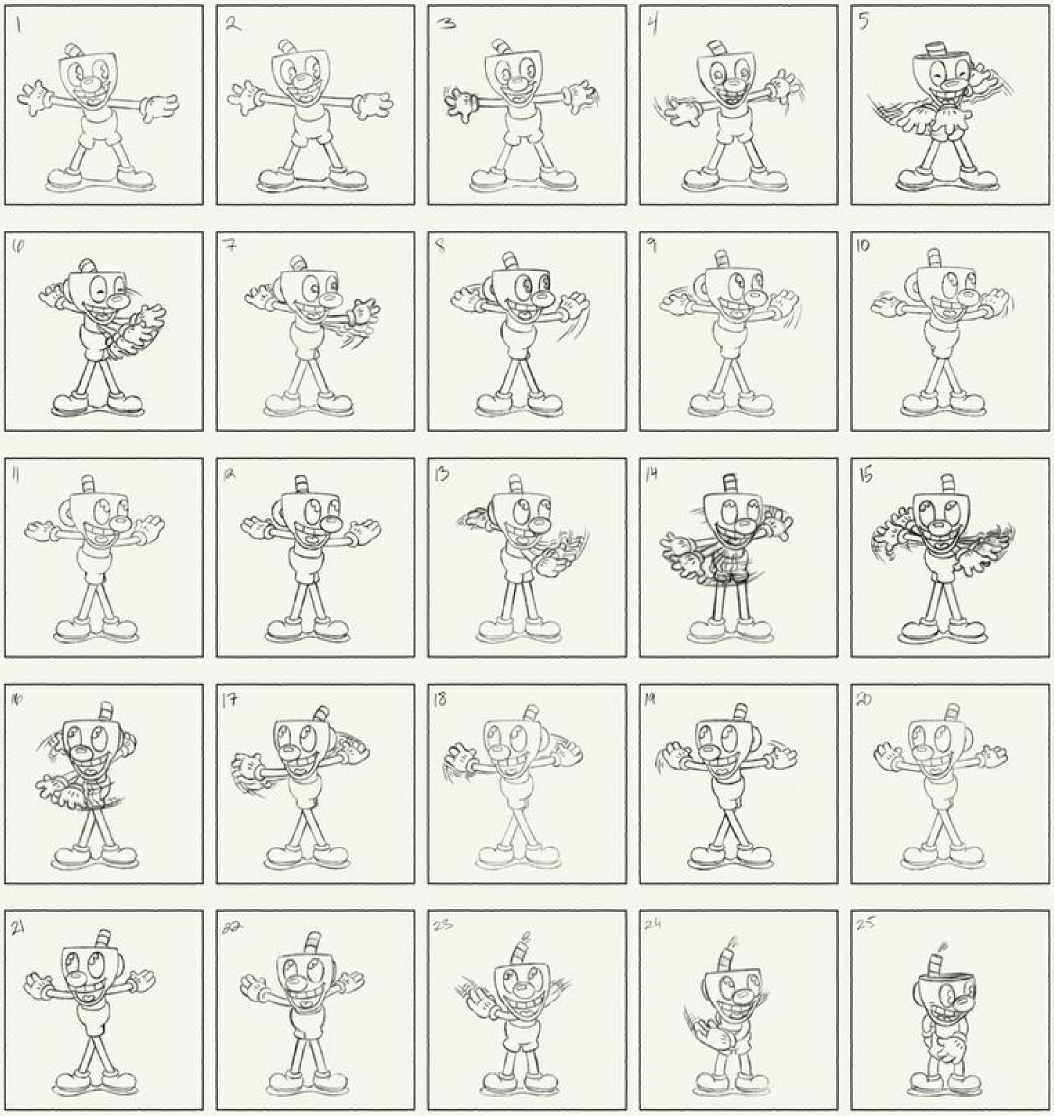


Mugman

MORE CAUTIOUS AND A BIT OF A WORRIER, Mugman is Cuphead's goofy and loyal younger brother. While he secretly loves the adventures Cuphead drags him into, he often frets about the collateral damage they might cause. We knew from the beginning that a two-player experience was the goal with *Cuphead*, but Mugman's design didn't actually fall into place until a little way into development—after bosses like Captain Brineybeard and Cagney Carnation had been designed. In scouring through early Bimbo cartoons, we noticed that some artists chose to depict him differently, with an exaggerated big nose; with that in our minds as a central character feature, his design (meant to mirror Cuphead's closely) started to coalesce. Mugman's signature blue coloring not only contrasts Cuphead's well (as two primary colors), but also ties nicely into the colors assigned to players one and two in a favorite series of ours growing up, *Contra*.

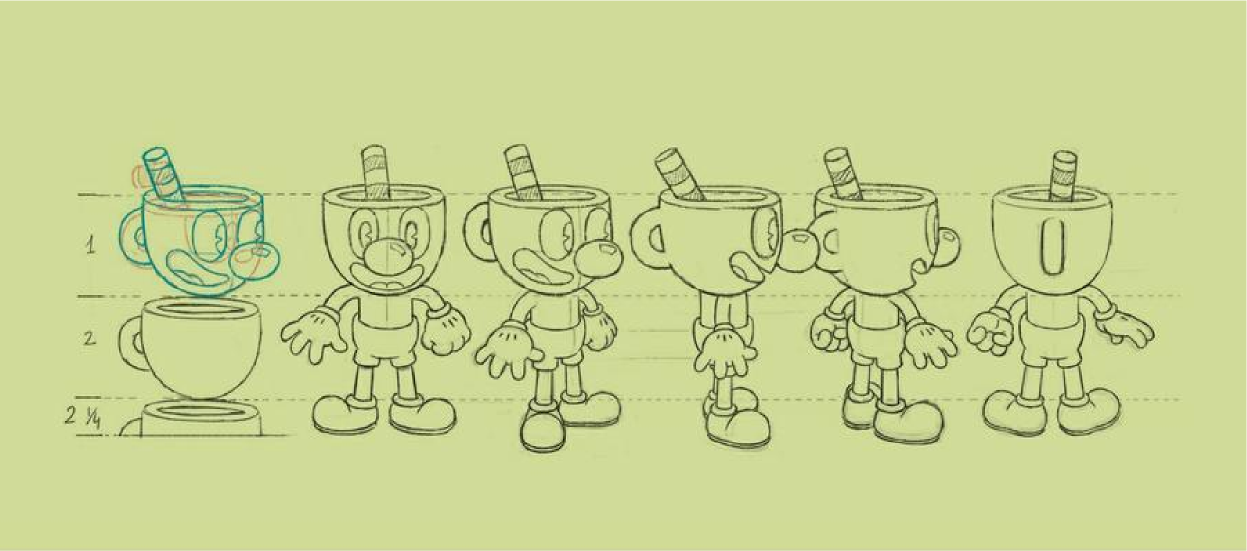


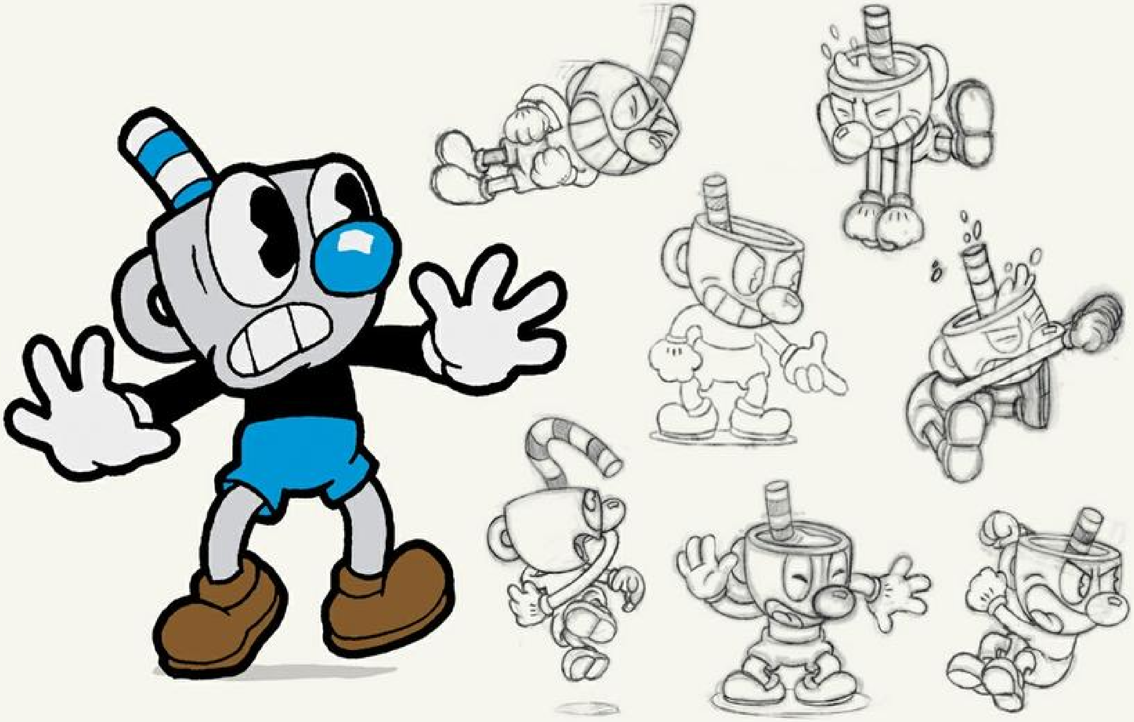




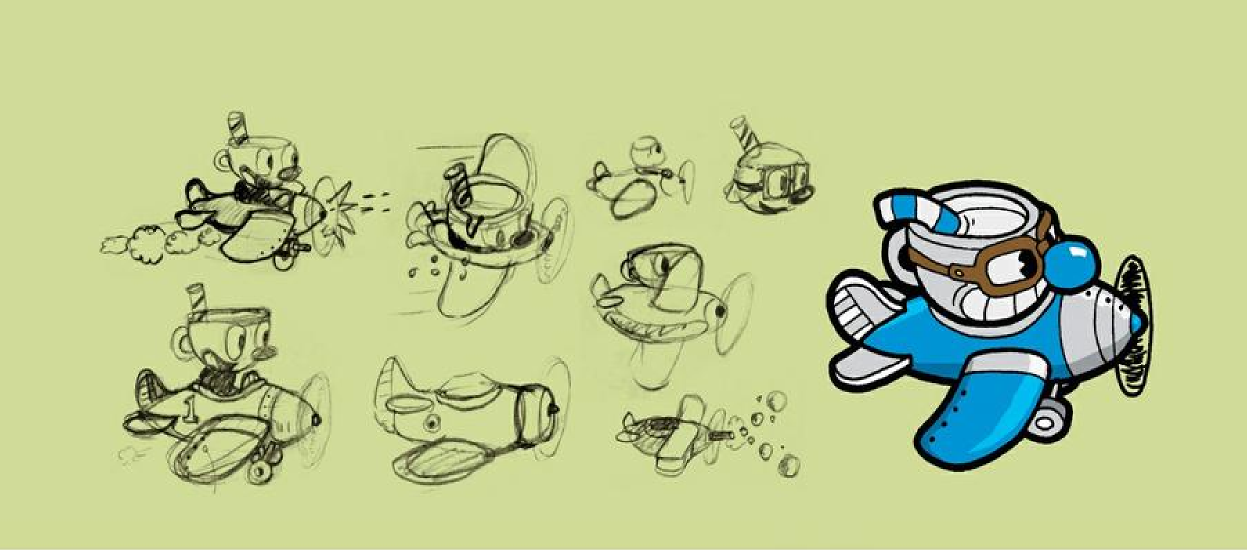
Pictured above is a fifteen-frame exercising antic from Mugman by animator Joseph Coleman. One of the introductions created to start boss battles, these character moments were one of the key times we had to show off Cuphead and Mugman's personalities, and differentiate the two from one another. Since a game is a largely player-controlled experience, we needed to be able to snap to and from almost any one of Cuphead and Mugman's animations at any time, while keeping the same hitbox and general shape between the two characters for design consistency.

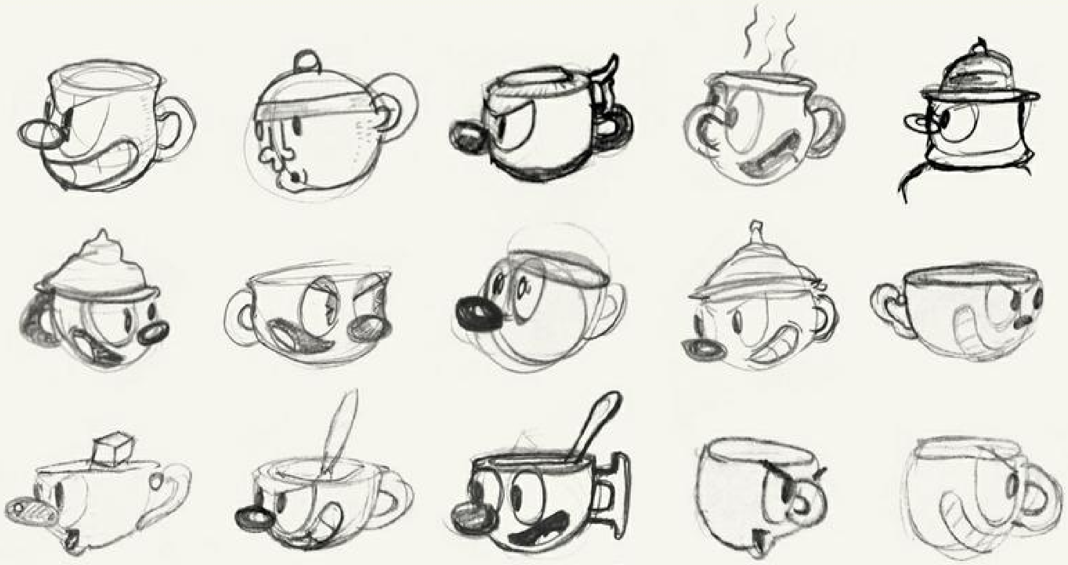
An antic like this, which shows Mugman stretching cheerily and baring his big single strip of teeth, is meant to play up his somewhat dorky nature, and emphasize the sense that he's one to overprepare for a battle rather than jump right in. Speaking of which, Mugman's status as the second player character and younger brother also pays homage to our own gaming past, in which the older brother always had veto rights to be player one—sometimes to the chagrin of the more easygoing younger brother!

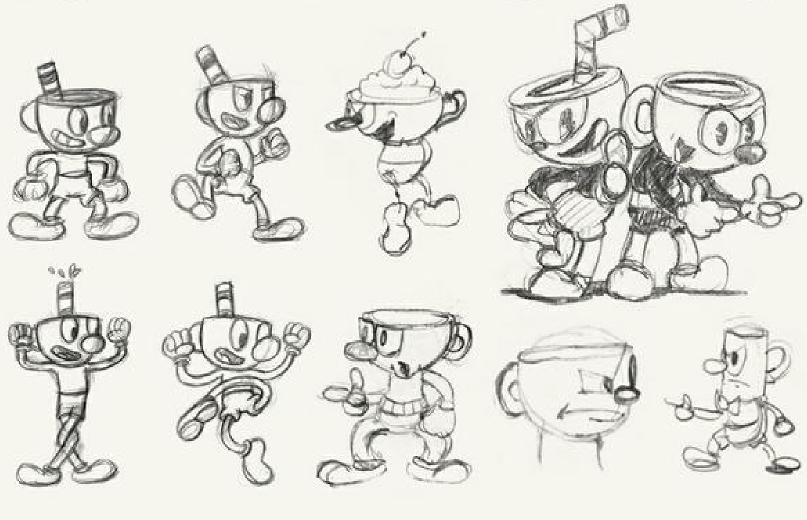




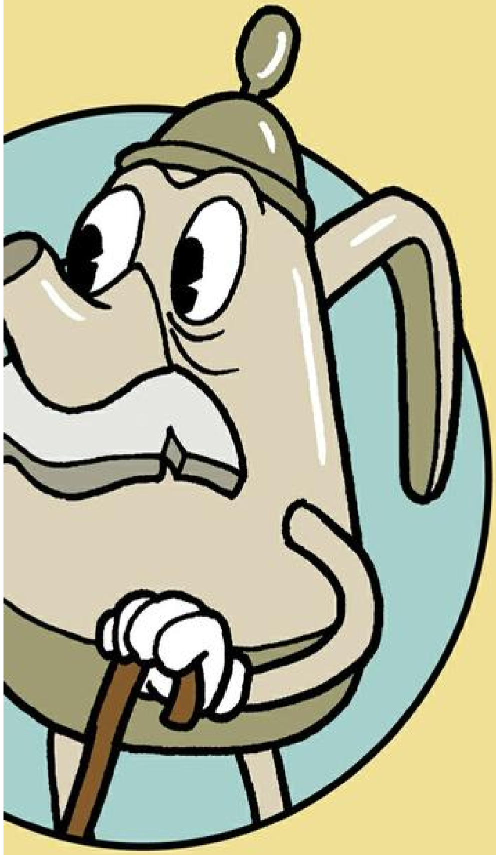
Above you can see a character turnaround for Mugman; we use these to ensure that if multiple animators are working with the character at any point, all depictions remain consistent. This was especially useful for Mugman, who was animated by four people in total—Sherrie Sinclair, Abby Lee, Emily Barrera, and Joseph Coleman. Fun fact: both Cuphead and Mugman's handles are like Mickey's ears—both as an homage in shape, and in the sense that both are always pulled slightly to the side to give the characters their classic silhouette (an old Disney trick). With both Cuphead and Mugman, it was important for us to know when to be playful and stretch their limbs and movements beyond their "gameplay box," and when to keep them restrained for easy readability. In a game as focused on careful timing and tight movement as *Cuphead*, conveyance and clarity of form allow the player to trust the way their character is going to behave in any given situation, and maneuver confidently. While we loved to be playful during development, we never wanted to let animation delay player input or cause confusion.







Scans of early explorations for the character that would be Mugman, including some very weird and bizarre ideas that felt a little too out in left field even for a game inspired by 1930s cartoons! Since Cuphead and Mugman use the same base body, and we felt confident about our second player having a straw, this concept round was much less exhaustive than Cuphead's!



Chapter II:

The Supporting Cast

FROM CLASSIC ROLE-PLAYING GAMES to tough-as-nails run-and-gun titles, our favorite games growing up all had something in common: their heroes couldn't save the day alone. Whether it was kindly caretakers, street-smart shopkeeps, or caring magical beings, no fight against evil felt complete without a cast of friendly allies supporting the main characters along the way. So, as we fleshed out the world of the Inkwell Isles and filled it with bosses to surmount and baddies to best, we also began working on concepts for a supporting cast that could help Cuphead and Mugman on the quest to save their souls.

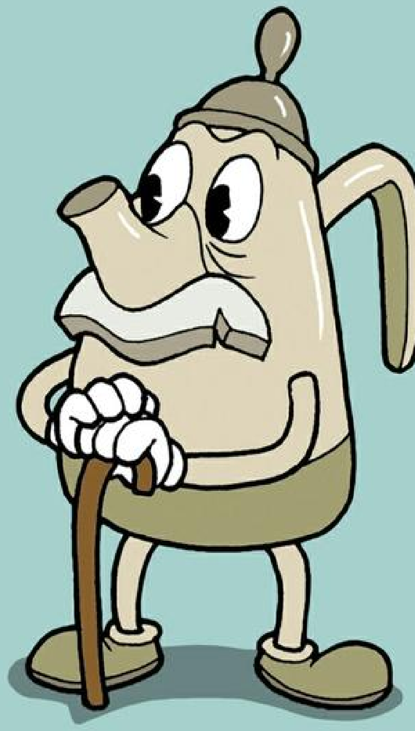
We first designed the core gameplay and systems, as well as the concept for the overarching story of the game, and then looked for places that a trusted friend or special character might come in handy. Out of our many weapons and charms came Porkrind, the gruff and grousing shopkeep with potent wares to peddle. For doling out Super Arts, we created the Legendary Chalice, whose nature as an ancient ghost from the mystical astral plane made her suited to bestow you with great power, while also fleshing out the lore of the game world. And like any epic quest with humble beginnings, we figured the best place to start would be in a cozy hamlet with someone you loved and cared about—and perhaps no one cares more in all the Isles about Cuphead and Mugman than the kindly Elder Kettle.

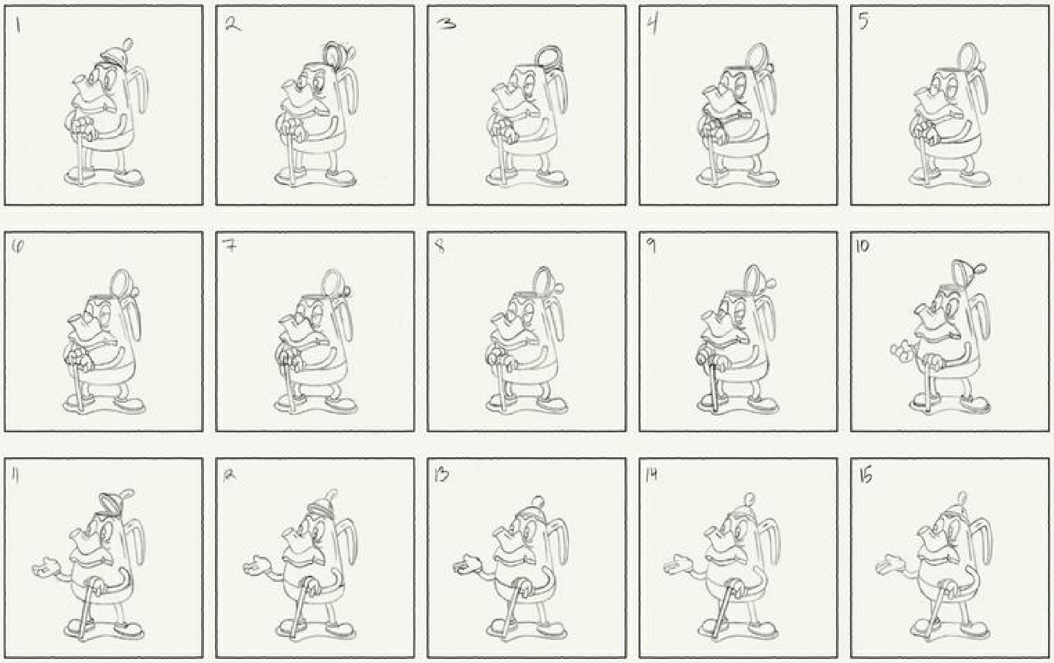
Elder Kettle

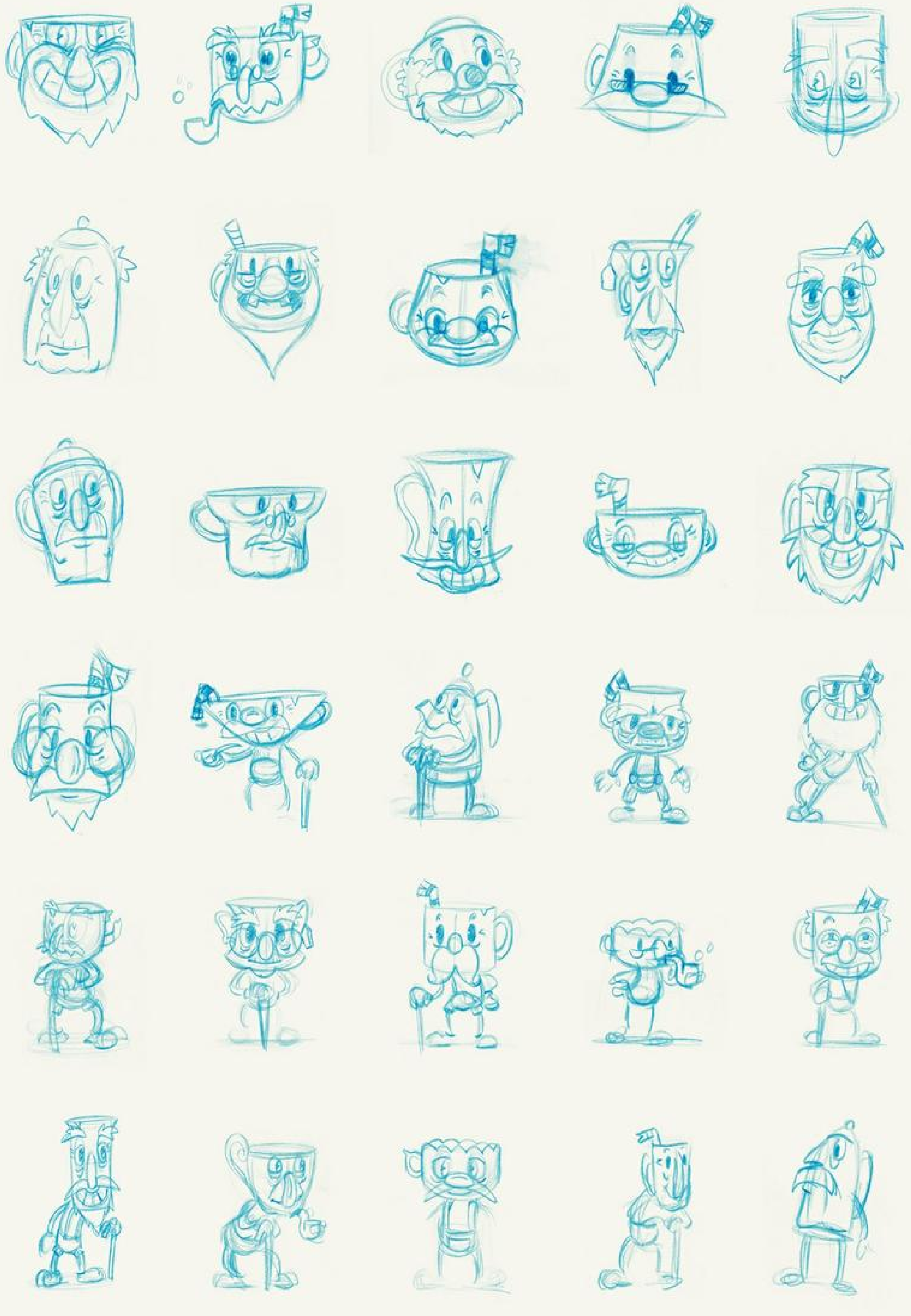
THE WIZENED OLD TEAPOT—full of knowledge of the Inkwell Isles from his years as an adventurer—is the moral core to the story of *Cuphead*. The guardian and mentor of the porcelain brothers, the Elder Kettle has taken great care to keep the rambunctious duo from harm, but this time they've gotten in over their heads.

Once we had the initial plot for the game nailed down, we knew we needed a metaphorical opposing counterpart to The Devil in the story. A kind and caring boon that Cuphead and Mugman could run to in their greatest time of need, able to point them towards a righteous path and assist them on their adventure. We initially envisioned an older cup character, but decided to branch out into other crockery that would imply the age of the character. From his chipped mustache to his faded green coloration, we wanted Elder Kettle to both look like he's seen some scrapes in his long life and to be a calming presence to have in company.

There's a lot of mystery about the life Elder Kettle led to get to this point, and his ability to conjure powerful potions from the ether, shown in the animation below, only hints at the old man's possible powers.



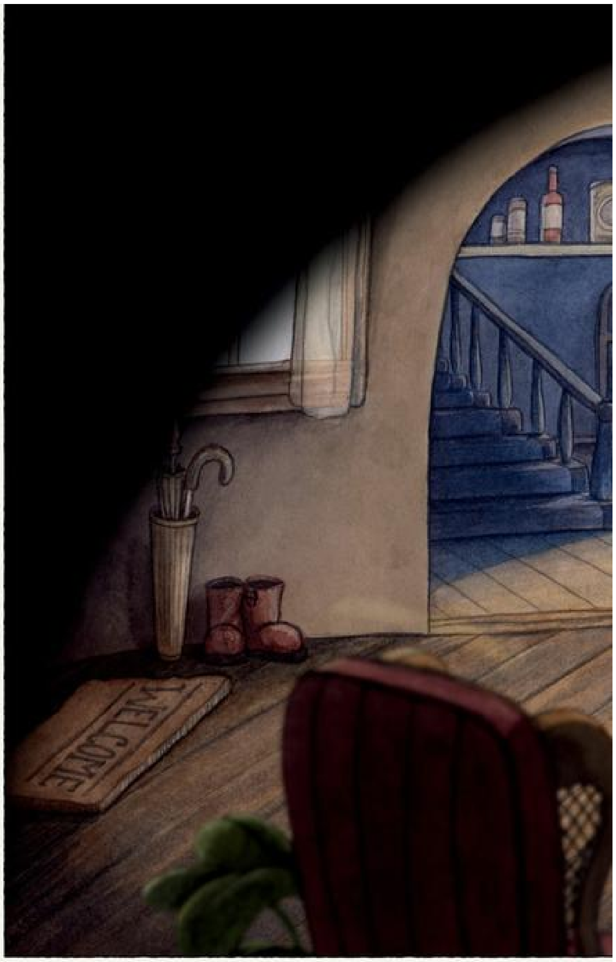


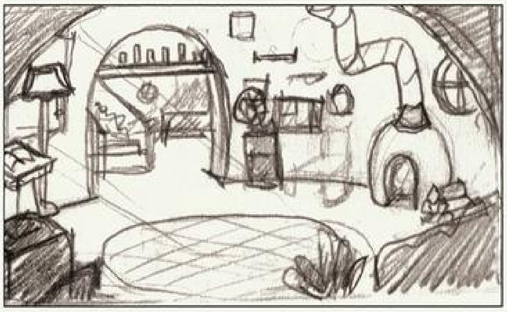


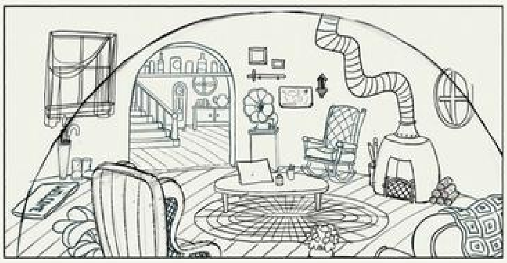
Elder Kettle's Home

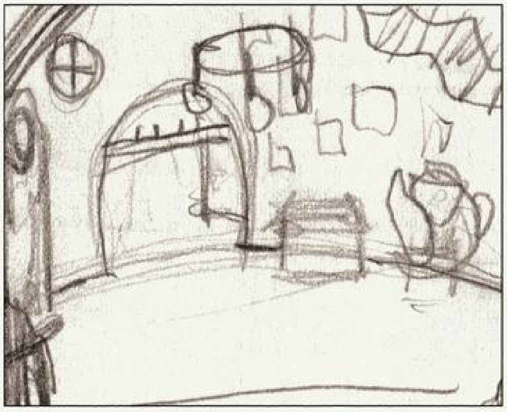
FOR ELDER KETTLE'S HUMBLE ABODE, we wanted it to feel as warm and as inviting as possible. To start Cuphead's journey, we wanted to open with pleasant and glowing earth tones to inspire feelings of home and a connection to nature. We wanted everything about the Elder Kettle's house to be the opposite of The Devil's casino. Where the casino was stark and angular, Elder's house would be rounded and smooth. Where the casino was produced and gilded, Elder's house would be simple and handmade. We wanted players to feel like they were leaving an organic home to trek to a phony synthetic city.

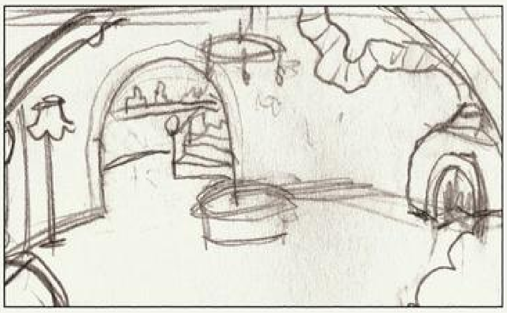
To furnish Elder Kettle's home, we populated his house with simple pleasures befitting his personality. The old-timey gramophone, a nod to Nintendo's *Donkey Kong Country* patriarch Cranky Kong, the rocking chair, and the hearth fire all speak to a tired man looking to live in peace. The sword hanging on the wall, however, speaks to a former hero who had adventures of his own in his youth.

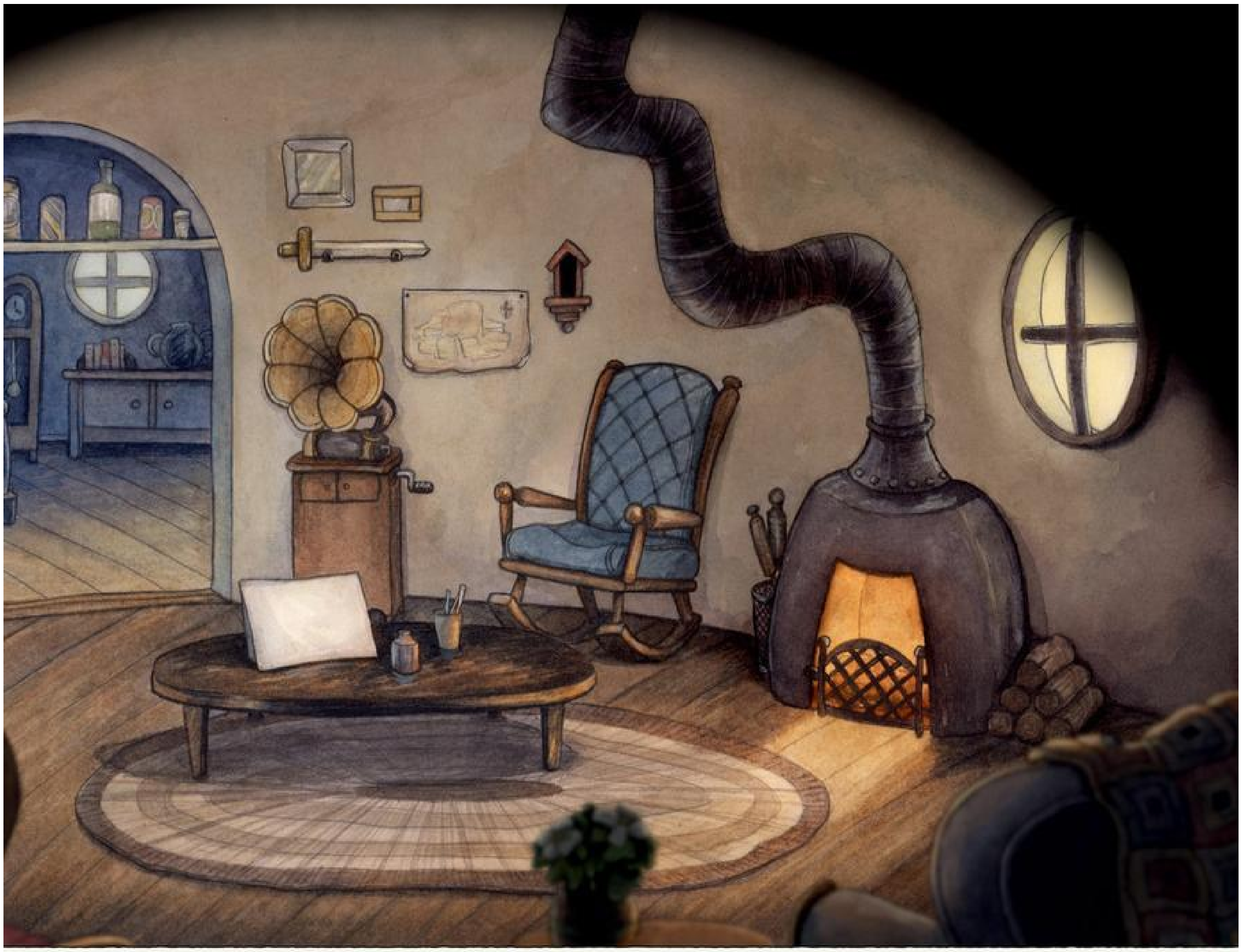


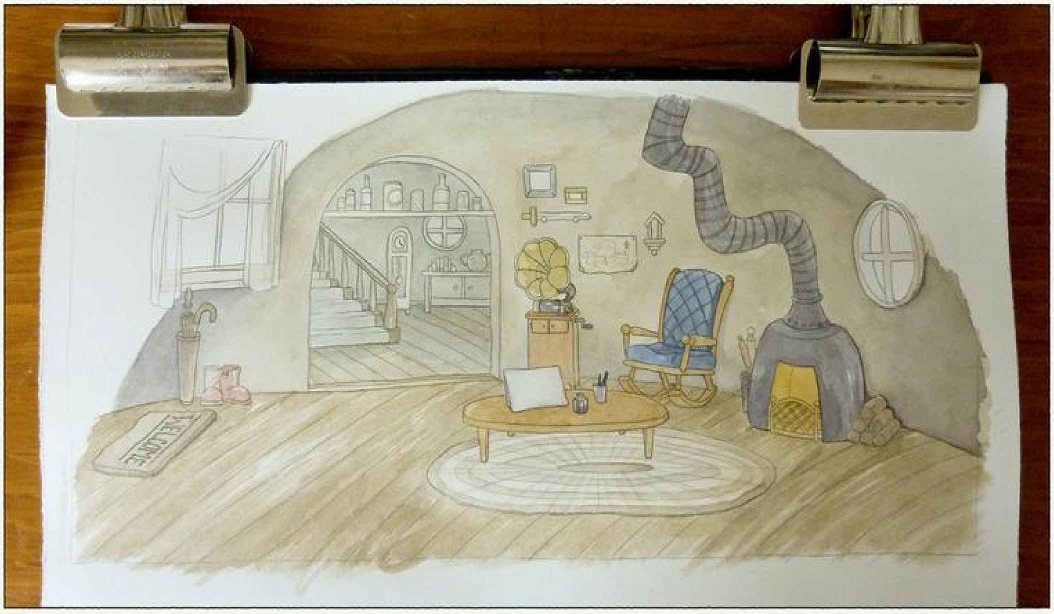










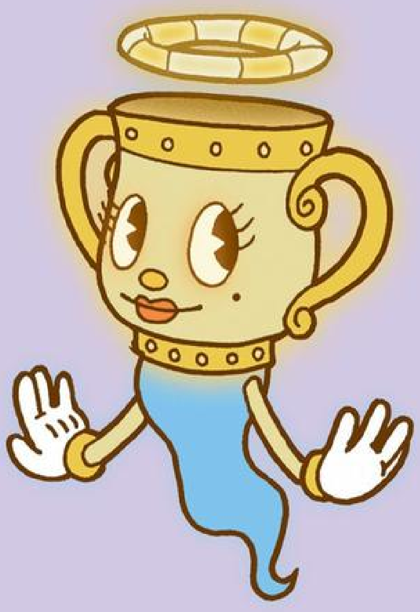

WELCOME

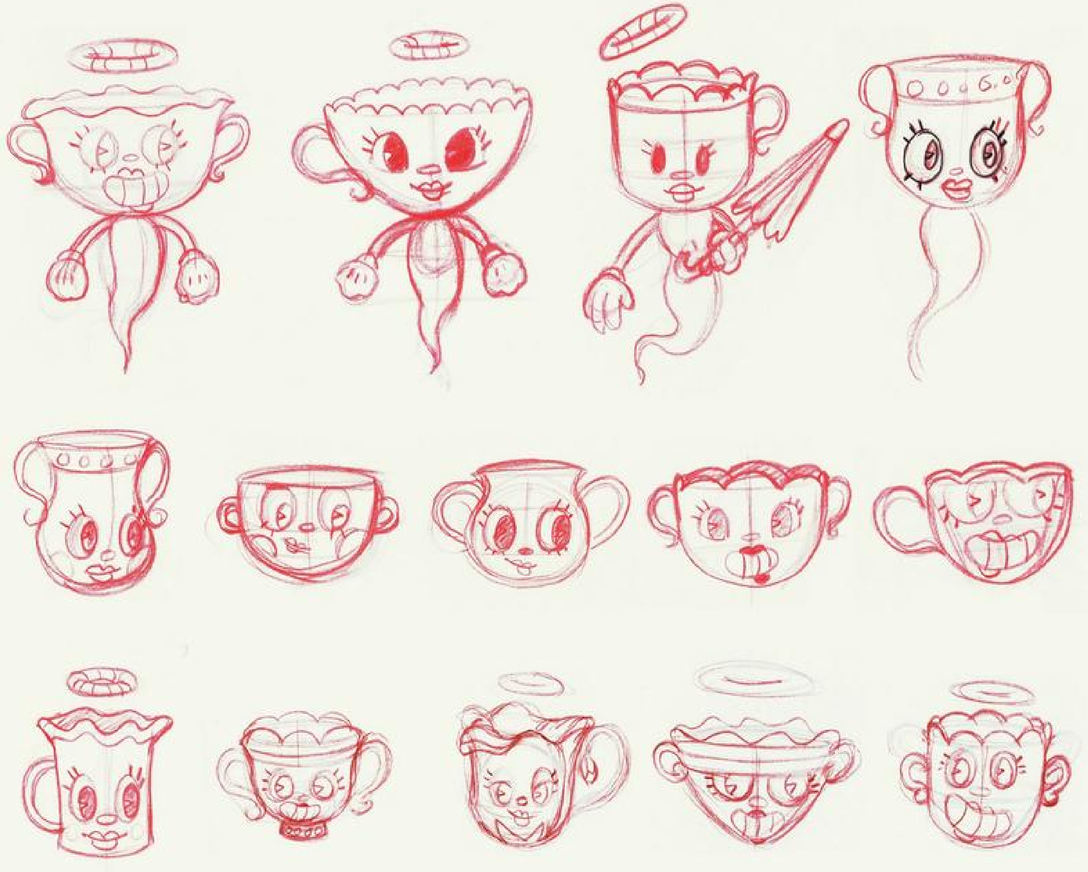
Legendary Chalice

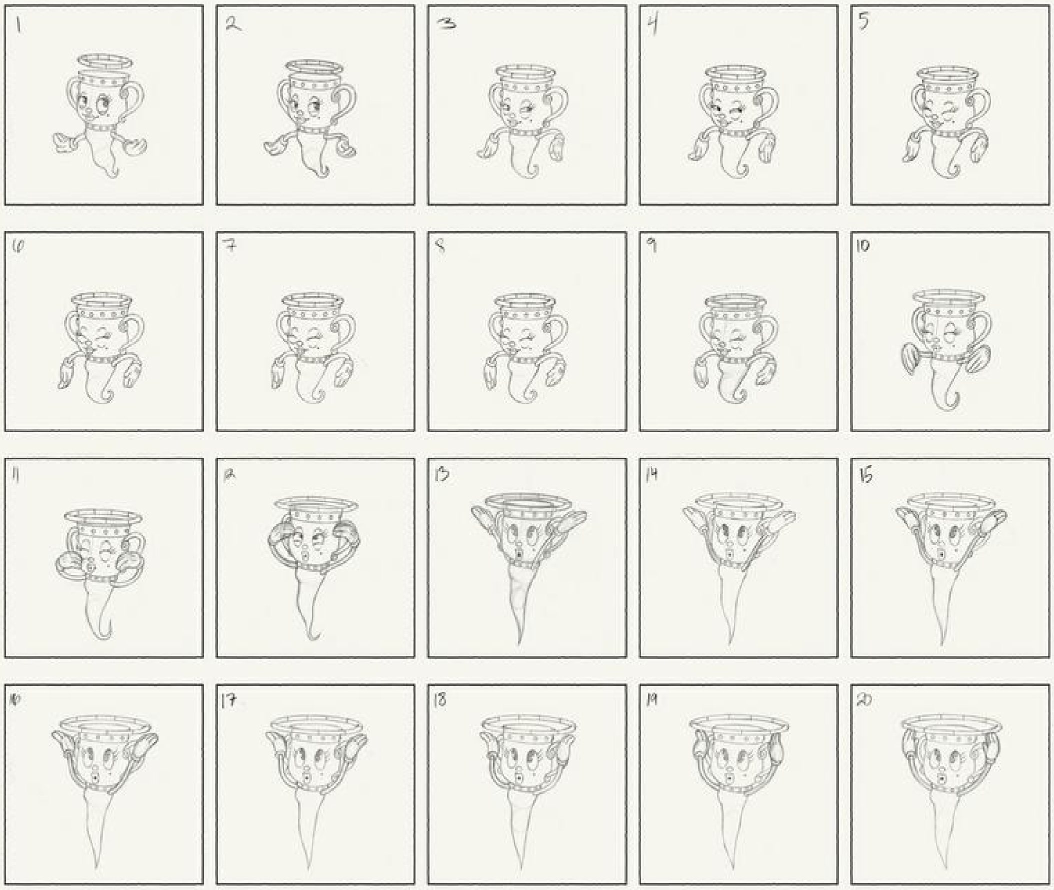
CAUGHT BETWEEN THE ASTRAL PLANE and the living world, the Legendary Chalice's curiosity constantly gets her into trouble, but her vast knowledge of the mystical arts is all the more plentiful for it.

When we came up with the gameplay for the Mausoleum levels that grant Super Arts, we needed a ghostly character who would appear to bestow the heroes with magical powers. Illustrator Danielle Johnson originally did concepts of ancient warriors, replete with armor and weapons, but we were most taken by the sketch of a regal friendly chalice. Keeping a connection to the mythical cup lineage of unspoken lore, we cultivated that character into the inquisitive and zany Legendary Chalice in the game.

While we didn't know it at the time, the Legendary Chalice's antics would end up making her a much more central character in the adventures of the Inkwell Isles to come!



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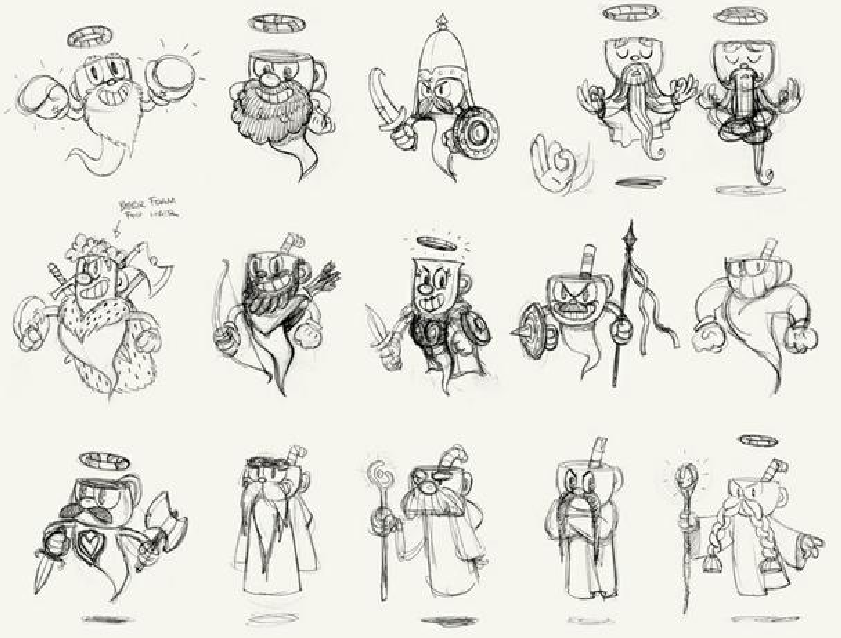
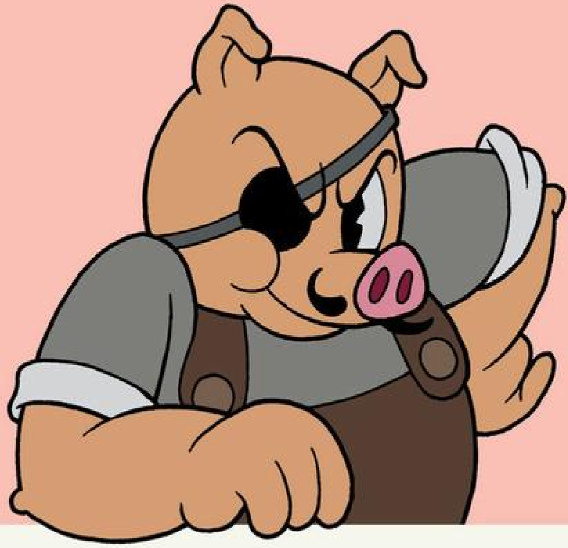

BEER FOAM FOR HAIR

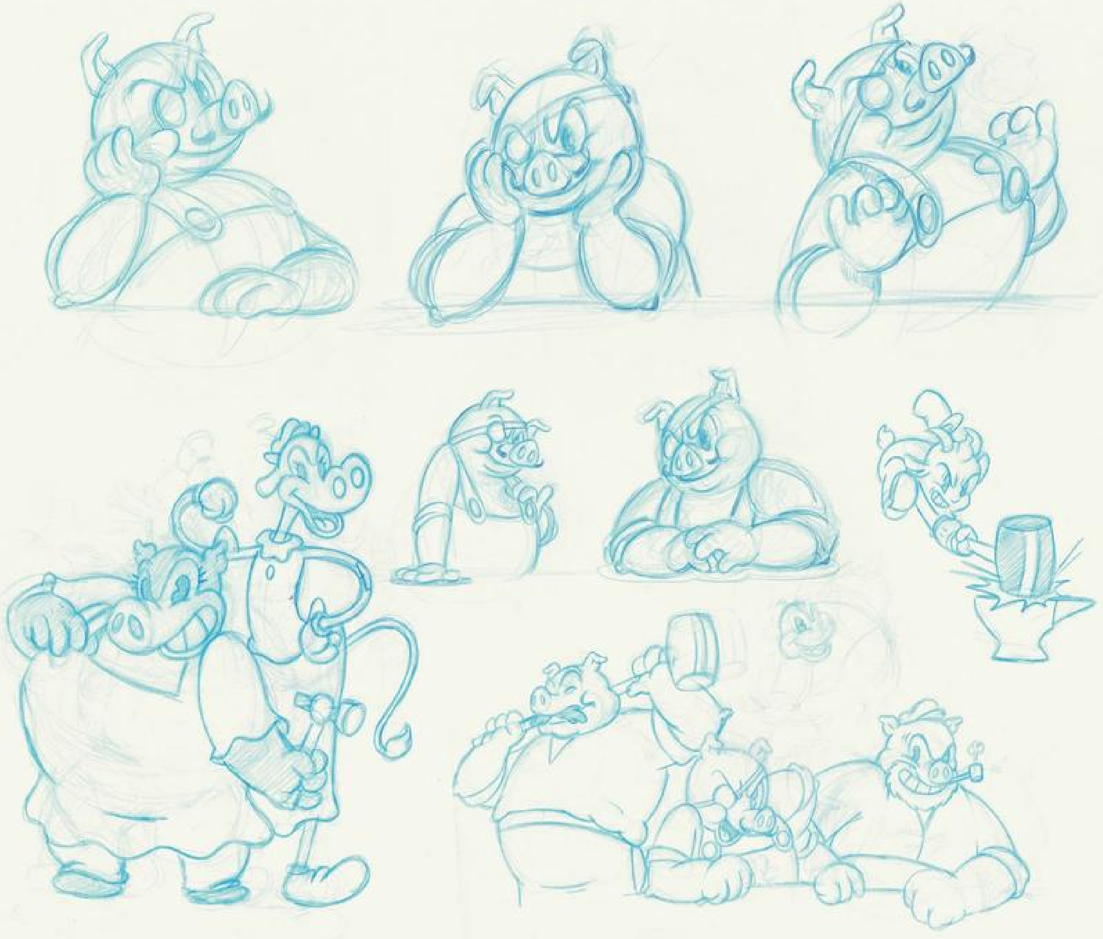
Above, *animator Tina Nawrocki captures the emotion of having a rainbow burst of astral-plane energy shoot out of the top of one's head.* Left, *Danielle Johnson's early pencil concepts for ancient ghostly warrior to be used to grant the heroes secret powers, including the earliest rendition of what would become Legendary Chalice at center.*

Porkrind

A PORTLY CONNOISSEUR OF ONLY THE FINEST RELICS, charms, and potions, Porkrind is a rough and tumble salesman who's traveled the Isles is his wagon-based store and seen it all. All business, this pig's got places to be, so if you're not buying anything, he's not going to stop himself from checking his watch.

Inspired by the many crotchety shopkeepers who've adorned video game shops for generations, Porkrind is a mix of the shopkeeper in Sega's *Wonder Boy III* and the pigs from Fleischer's 1938 Betty Boop cartoon *Be Up to Date*. Seen in the concept sketches below by illustrator Joseph Coleman, we had initially proposed to have a family of shopkeepers, each inhabiting a different Inkwell Isle. We fell back on a single iconic proprietor to ensure he got enough screen time to become familiar.





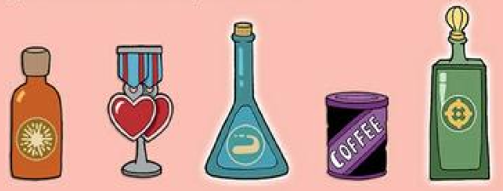
Porkrind's Emporium Items

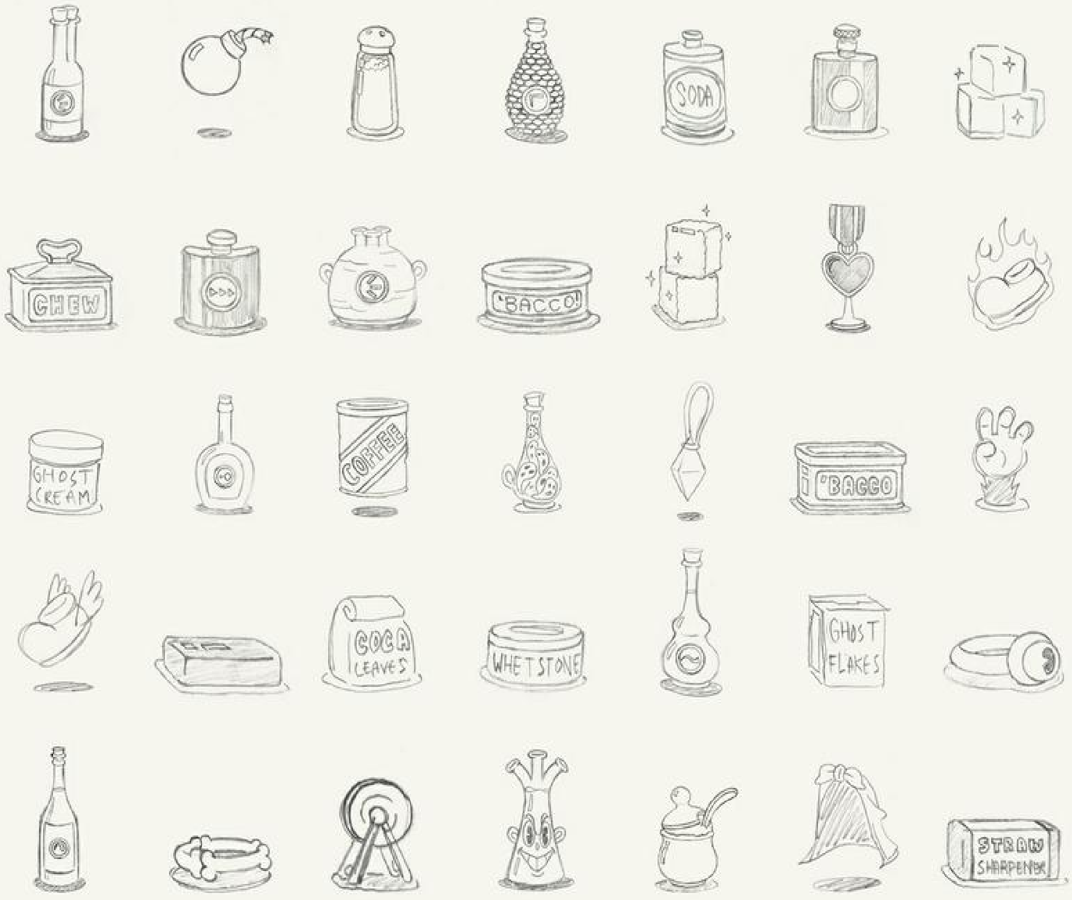
TRINKETS AND TINCTURES, only the rarest of charms and most radiant of potions are available at Porkrind's emporium of corrective curios! Magical potions granting bursts of energy from one's fingertips and mystical charms able to cure what ails you or ail what cures you!

The objects that line the shelves for sale in Porkrind's Shop originate from an idea we had well before the character or store was conceptualized. In one of our earliest marketing trailers, we showed Cuphead pouring a jug of XXX-marked liquid into his head in preparation for going into battle. It was a one-off gag, but that became the precedent for how we ended up representing the weapon icons in the store for purchase. Even though it wasn't expressly planned, it felt right, as mysterious potions of various colors seemed like the type of object that could be easily carried and sold in a traveling cart store like Porkrind's.

We went through a lot of various bottle shapes and sizes, seen below, trying to find the right "personality" for each weapon.

For the charms, we needed them to be obviously different from the weapon potions at a glance, so we tried to make them have an almost Western motif. We wanted the type of knickknacks and items a cowboy might be able to haul around with them while on the road—keepsakes granting luck and power that appeared to have a history of their own.

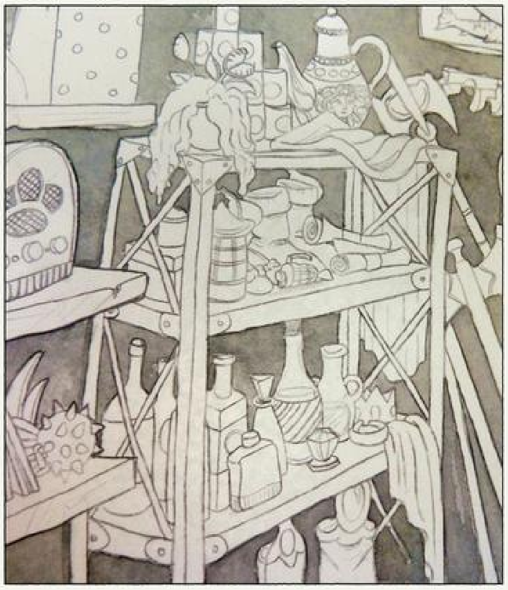


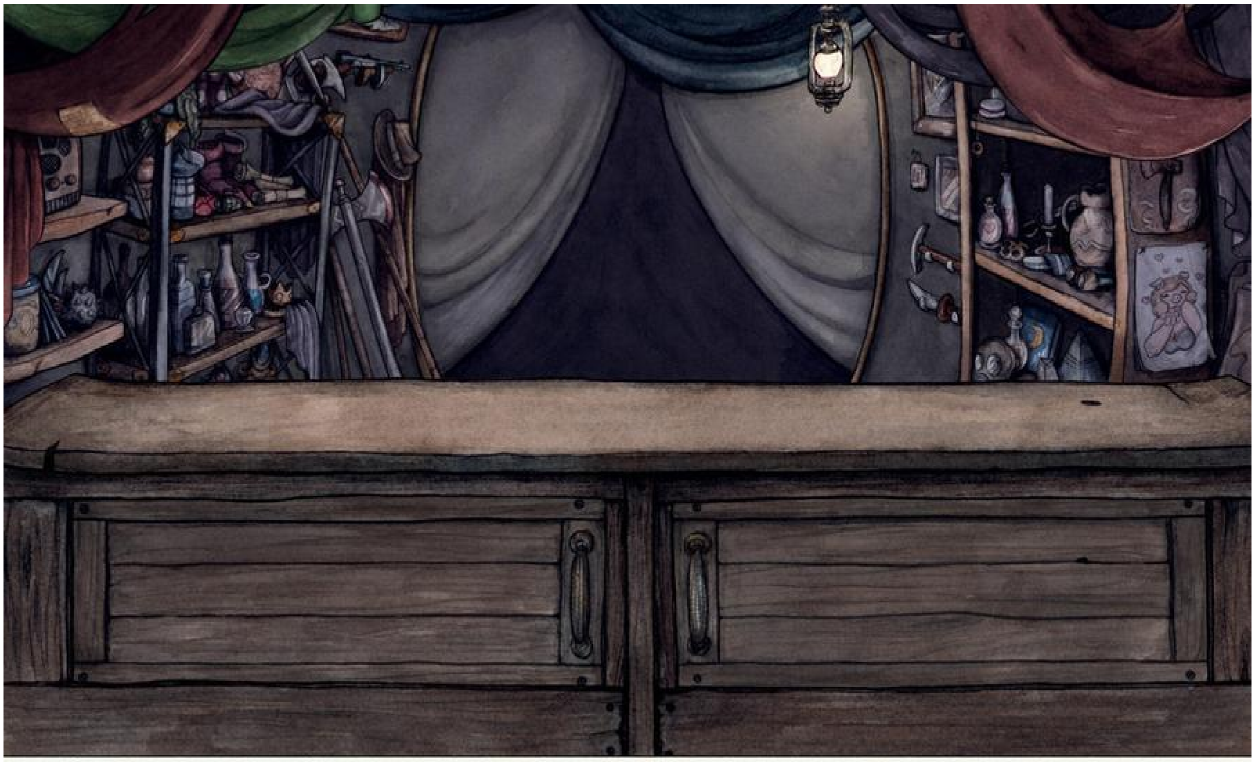


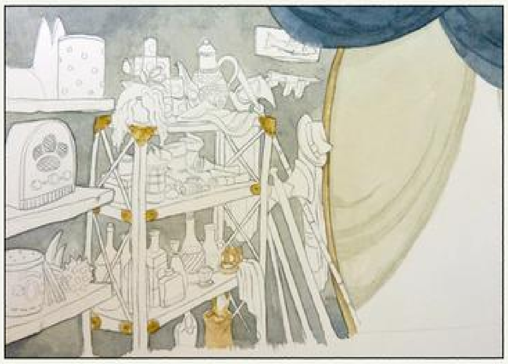
Porkrind's Emporium Background

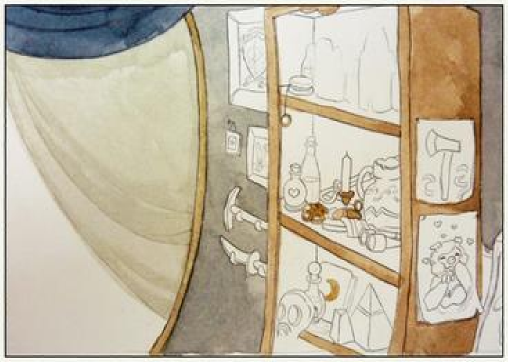
WE WANTED THE SHELVES LINING the background of Porkrind's Shop to literally display what was purely in our imaginations when buying weapons from the sell-swords in the 8-bit role-playing games we played in our youth. With homages to games like *Star Tropics*, *Phantasy Star*, *Beyond Oasis*, *Landstalker*, *Final Fantasy*, and *Castlevania: Bloodlines* (notice Eric Lecarde's spear leaning against the wall in the back) strewn throughout the shelves, we wanted Porkrind to seem like he had traveled lands outside of just the Inkwell Isles. As for the cheesecake poster on the right? We tried to convey Porkrind's personality—like that of a crusty and gruff trucker—had been hardened by his long and lonely time on the road. His shop is both where he works and where he lives—this pig sty is his home!

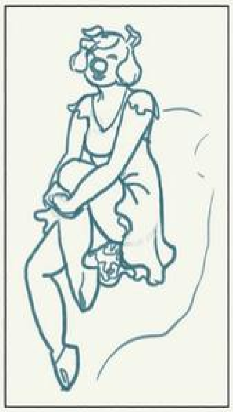
Needing a diegetic UI for purchasing the items, we set Porkrind high in the scene and played with the perspective of the shelves to fit everything on the screen at one time. Background painter Caitlin Russell painted the component parts in pieces, which were then separated and layered to create the front portion of the scene.

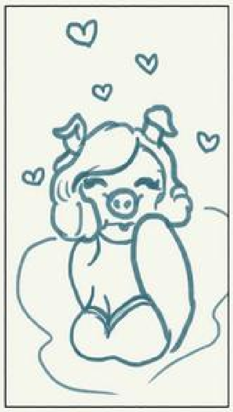












SHOP

Chapter III:

Inkwell Isle One

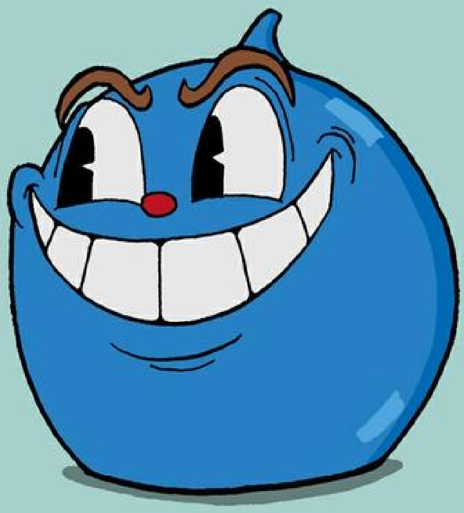
AS YOU TAKE YOUR FIRST STEPS out of Elder Kettle's cottage, on a mission to save your soul from The Devil, a lush forest full of adventure awaits. Welcome to the Inkwell Isles. Named after the seminal Fleischer Studios series *Out of the Inkwell*, whose classic cartoons so inspired us growing up, we wanted this first isle to ease players into the tough-as-nails journey that awaited them with its cozy pastoral aesthetic.

Like so many of the great Japanese role-playing games we enjoyed growing up, we loved the idea of *Cuphead*'s first world starting players off in a bright countryside setting—a place that would seem distant to them by the time they were battling The Devil in Hell itself at the end of the game!

Aesthetically, we were also drawn to the strong, clear motifs of Disney's Silly Symphony shorts like *Music Land*, with its map tantalizing the imagination to visit places like the Island of Symphony and the Isle of Jazz.

If you look closely, you can even see ruins dotting the surrounding waters. We peppered this abstract architecture throughout *Cuphead*, hinting at the existence of a history for this whimsical land that stretches far into the past. But for Cuphead and Mugman, there's no time like the present if they're going to pay their debt to The Devil . . . and a bevy of fearsome foes stands between them and their goal!

Goopy Le Grande
in
"RUSE OF AN OOZE"

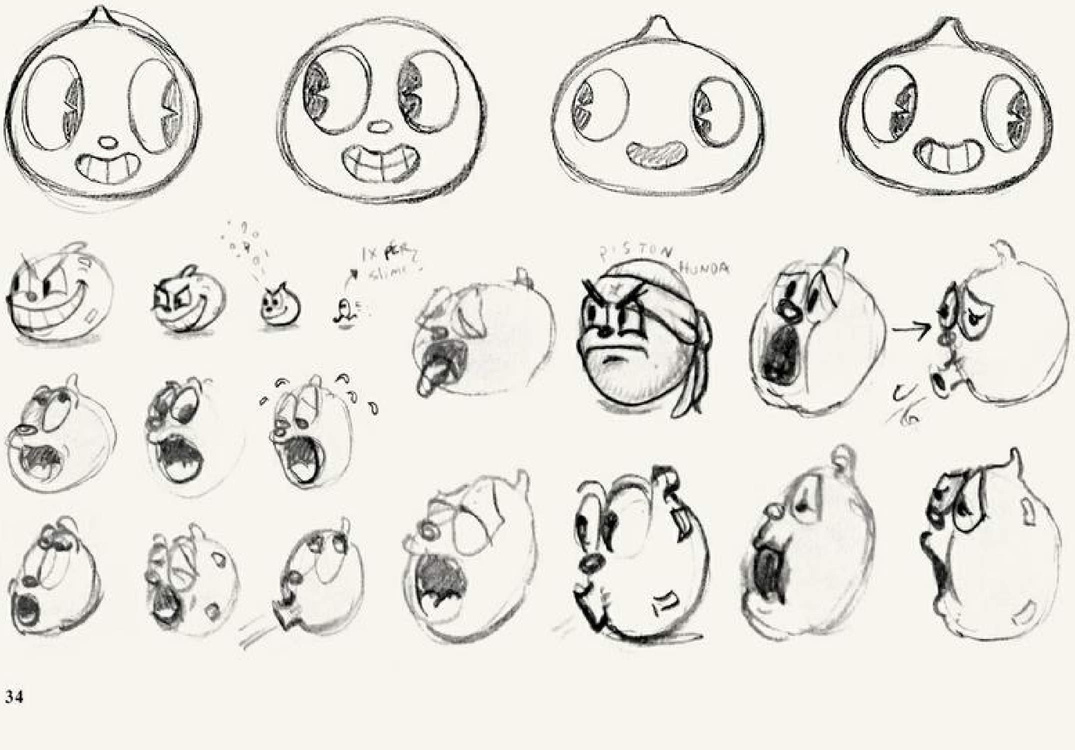


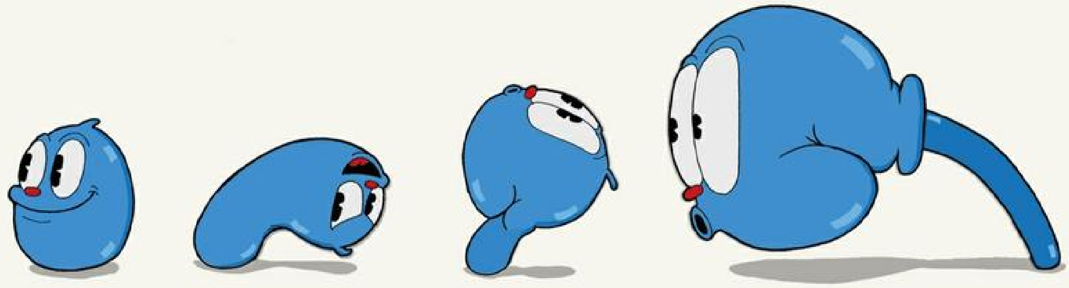
IN OUR DEBUT TRAILER for *Cuphead* shown off in 2013, you can see a very early version of the boss that would become Goopy Le Grande, splitting into two smaller slimes and jumping across the screen. Between that time and the game's launch in 2017, Goopy was one of the bosses that underwent the most sweeping art and design changes. After that early prototype, we conceptualized a version of Goopy that would transform into large hand formations as a nod to Rock, Paper, Scissors, but found his personality getting lost amidst the visual gimmicks.

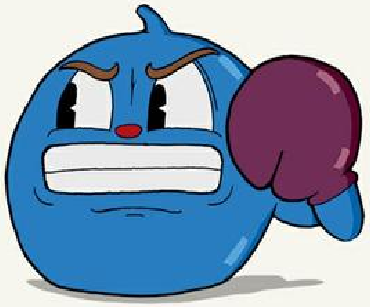
Eventually, we honed in on a design that really leaned into his malleability as a slime, while playing up his fun and exaggerated facial features. All the while, we knew we wanted to pay homage to gaming classics like *Dragon Quest* and cartoons such as Ub Iwerks's *Balloon Land*. We even managed to sneak in a nod to one of our favorite modern titles, *A Boy and His Blob*, as Goopy eats a jellybean in order to grow larger!

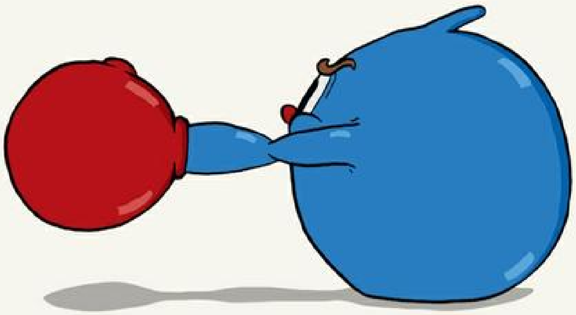
As we refined Goopy, we did have to cut a much-loved secret attack based on *Mike Tyson's Punch-Out!!*, but if you look closely you can see some remnants of it remaining in the way the character blinks his eyes.

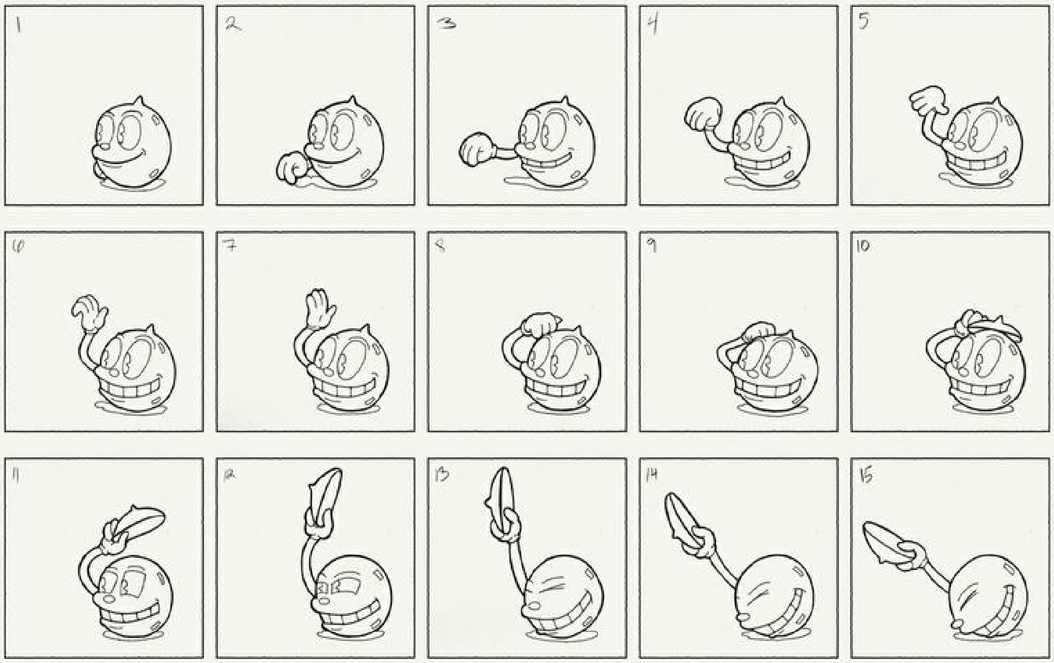
One thing that did remain consistent? Goopy's earliest animations were hand-drawn by art director Chad Moldenhauer, and they can all be seen in the final game.







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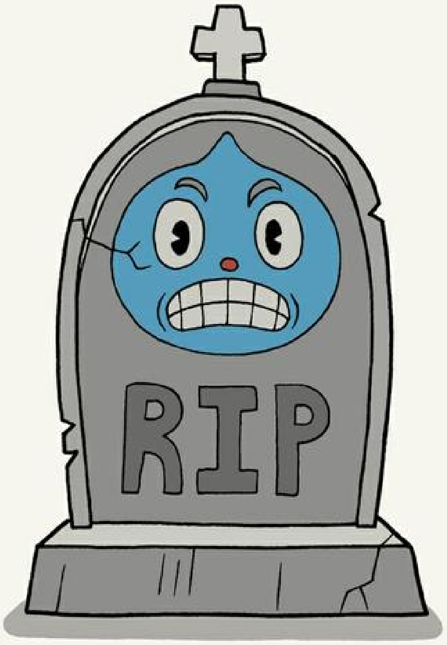
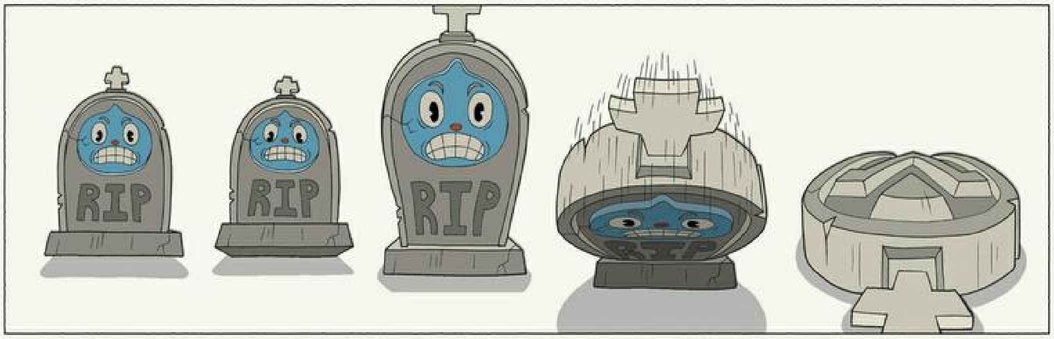
This fifteen-frame bow is a (literal) nod to Otto Messmer's Felix the Cat, who would frequently remove parts of his body for visual gags.

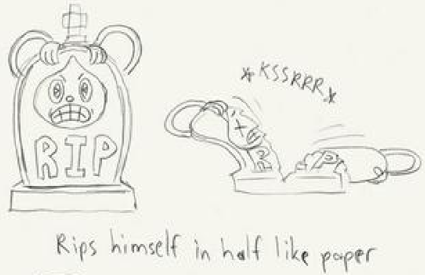
“I’m very smashing . . . even in grave situations!”

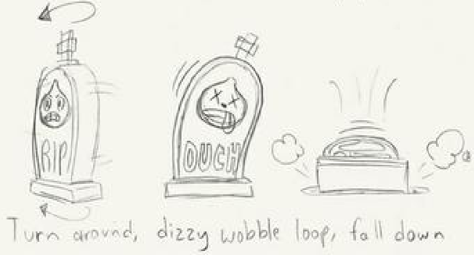
In true 1930s cartoon fashion, we wanted *Cuphead*’s bosses to go through over-the-top and unexpected physical transformations. It was also a design priority to ensure we kept players on their toes with pattern and attack variety. This is what drew us to the idea of Goopy’s final stage taking the form of a “living” tombstone. Just when you think the fight is over, the pugilistic slime comes back (from the grave) for revenge.

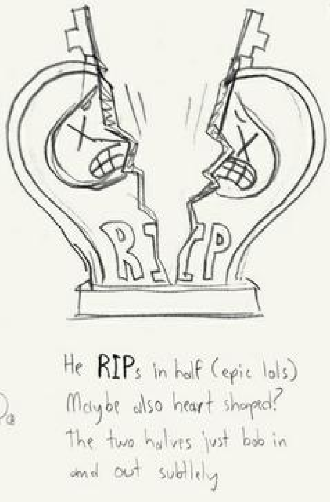
Animator Jake Clark experimented with the idea of Goopy ripping himself in half after being defeated, but we ultimately found that the version of his headstone without hands looked cleanest and meshed best with this phase’s patterns.

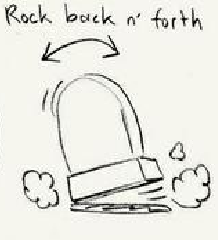


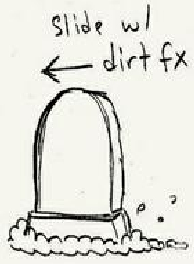


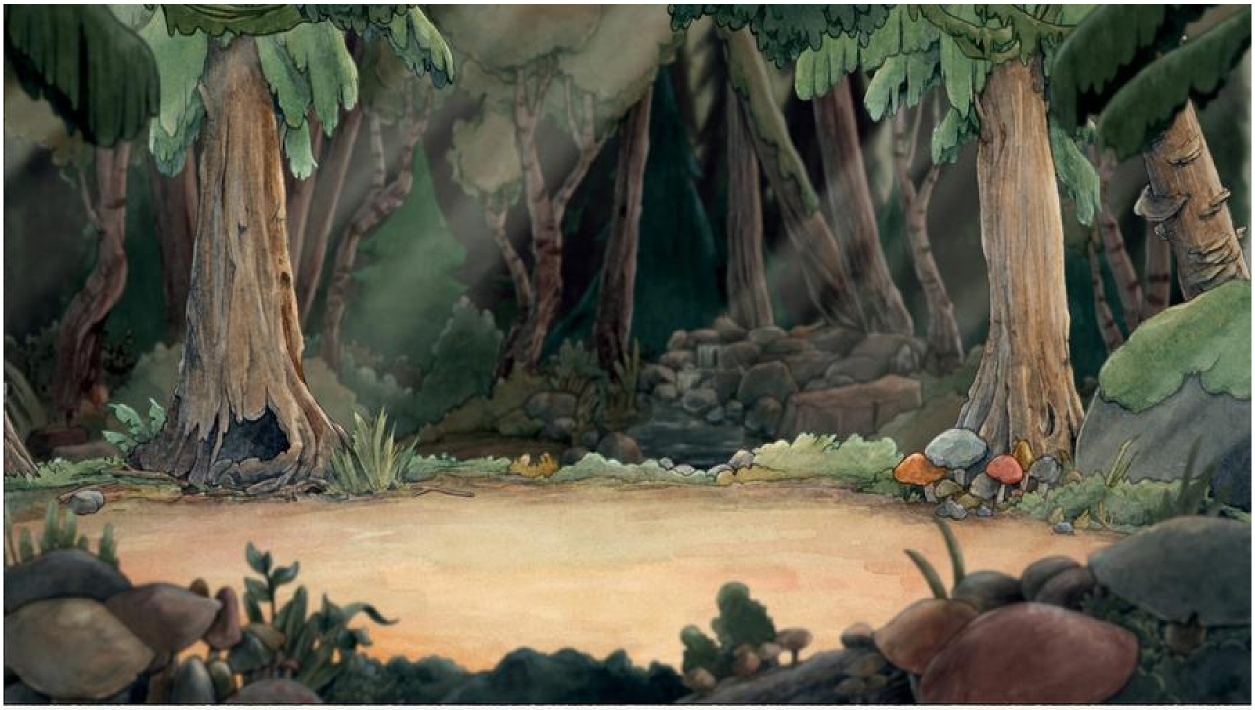

RIP
KSSRRR
Rips himself in half like paper


RIP
OUCH
Turn around, dizzy wobble loop, fall down


RI
IP
He RIPs in half (epic lols)
Maybe also heart shaped?
The two halves just bob in and out subtlely


Rock back n' forth


Slide w/ dirt fx

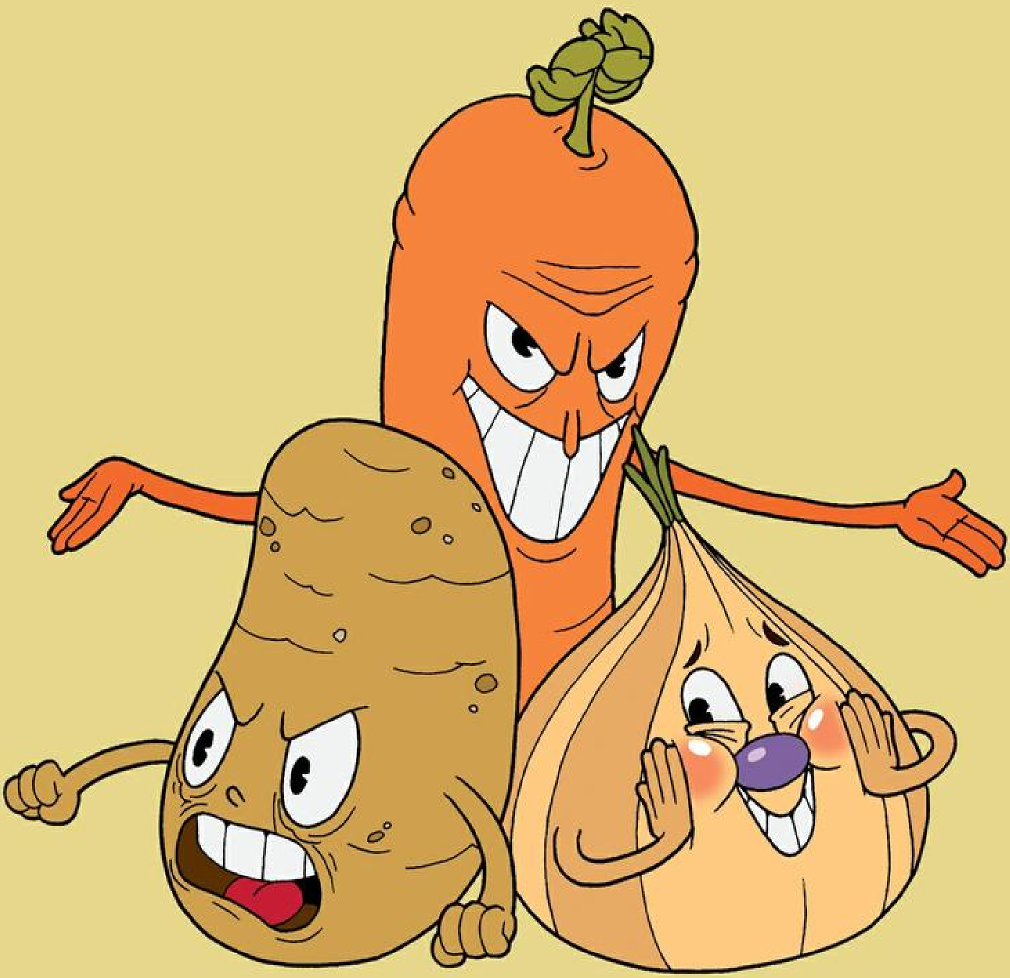


Ruse of an Ooze Background

AS WITH GOOPY LE GRANDE himself, this background went through several complete redesigns as we experimented with early art styles for *Cuphead*. Initially just a simple watercolor field set against a cloudy sky created by Chad, it was refined to include a winding pathway that led to a castle, reminiscent of *Dragon Quest,* for our trailer at the Electronic Entertainment Expo in 2015.

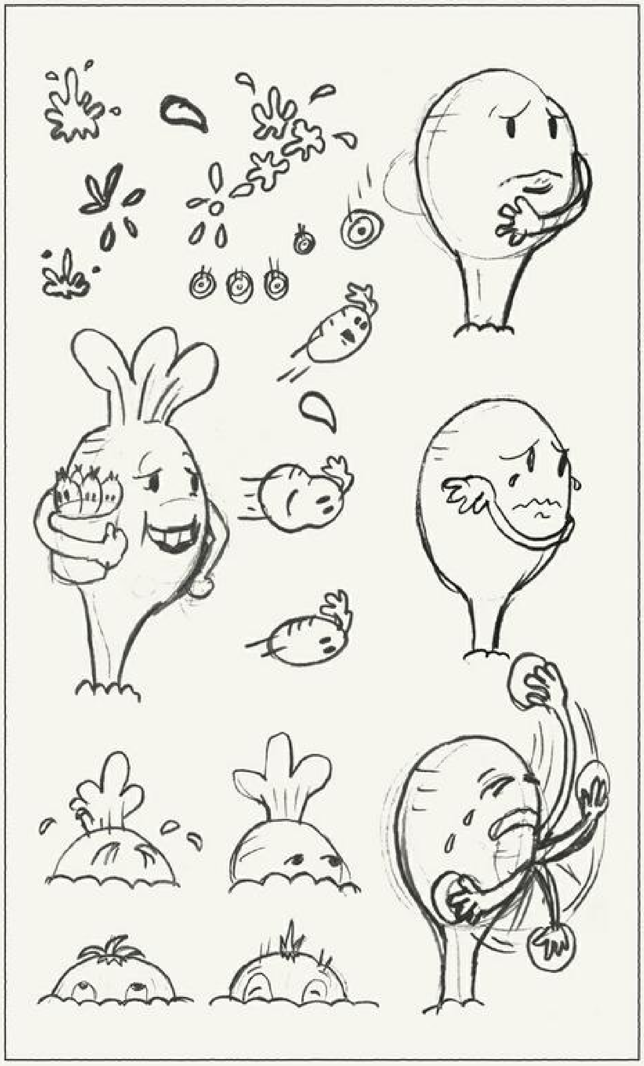
The background you see here was created by our painter Caitlin Russell, who joined the team as the scope of the project grew. In that way, its evolution arguably mirrors the growth of the game itself—from a small, personal effort between two brothers to a team endeavor bigger than we could've dreamed when it all began.

In the final product, Caitlin captured the cozy, welcoming warmth of cartoon forests like the one from Disney's *Snow White and the Seven Dwarfs.* What better place to begin a grand adventure?

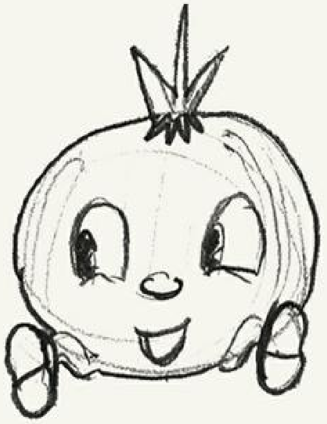


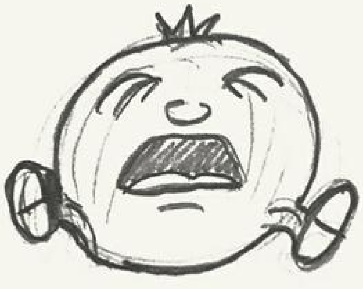
The Root Pack
in
“BOTANIC PANIC!”

WHILE NONE OF THE BOSSES IN *CUPHEAD* were meant to be a breeze, the Root Pack was perhaps the closest we came to creating a welcoming battle. And this was no accident! This fight was designed to help players get to grips with the game’s basic mechanics; Sal Spudder the potato encouraged you to master your jump to avoid his earthworm projectiles, Ollie Bulb the onion forced you to move left and right to avoid his tears showering down from above, and Chauncey Chantenay the carrot tested your aim as you fired projectiles at him diagonally.



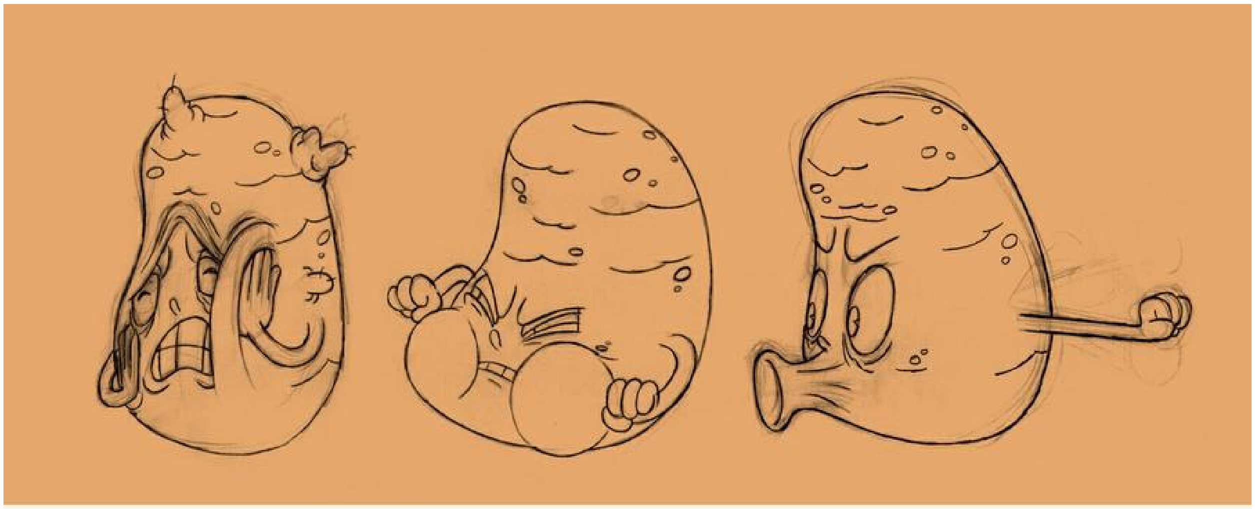
A sketch sheet containing a first pass at a few members of the Root Pack, including the unused character Beetrice Lutz, and early iterations of Ollie Bulb that helped us realize we would absolutely want tears and crying to be a central feature of his personality.





Knowing we wanted a fight that was mechanically simpler helped push us in the direction of visual variety. The Root Pack is one of the only bosses in the game that uses completely separate characters for each phase instead of bringing one character through a series of transformations. During early development, we even leaned a little too heavily into this "ring leader and henchmen" dynamic, concepting five vegetable phases for this fight. Just like it was meant to be for the players, the Root Pack was a big learning experience for us as we discovered what the best flow for a *Cuphead* fight should be.

To contrast the nonthreatening imagery of a trio of simple vegetables, we did try to push the team to explore expressions and animations for the Root Pack that were more unsettling. This juxtaposition—of a typically harmless inanimate object turned horrifying—is something with which 1930s cartoons were rife, so we wanted to make sure it existed in *Cuphead* from the outset.

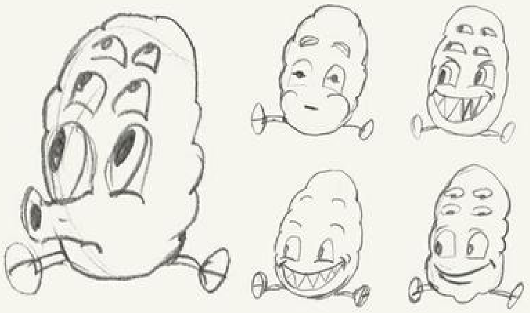


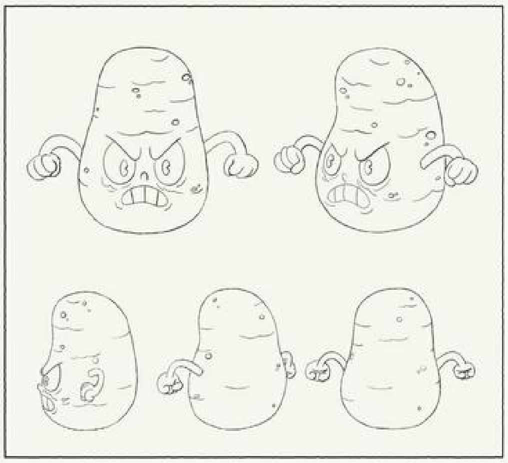
Sal Spudder

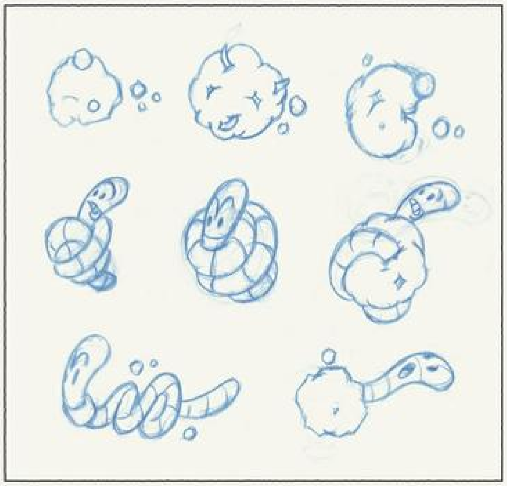
PICTURED BELOW IS SOMETHING we occasionally do during our early character exploration phase. On the left, you can see a multi-eyed potato resembling the one found in the 1938 Fleischer Brothers animated short *Tears of an Onion*, whistling away. This design is really close to the potato in that cartoon—so close, in fact, that we knew we were never going to use it.

However, sketching out characters from classic cartoons and riffing off of them with other permutations and ideas was often a way we would guide ourselves toward an original design that still felt era appropriate. In this case, this early sketching further convinced us that we wanted to push our Root Pack characters away from a menacing look into the goofier territory of the drawings on the next page, to fit the theme of this being an introductory fight.

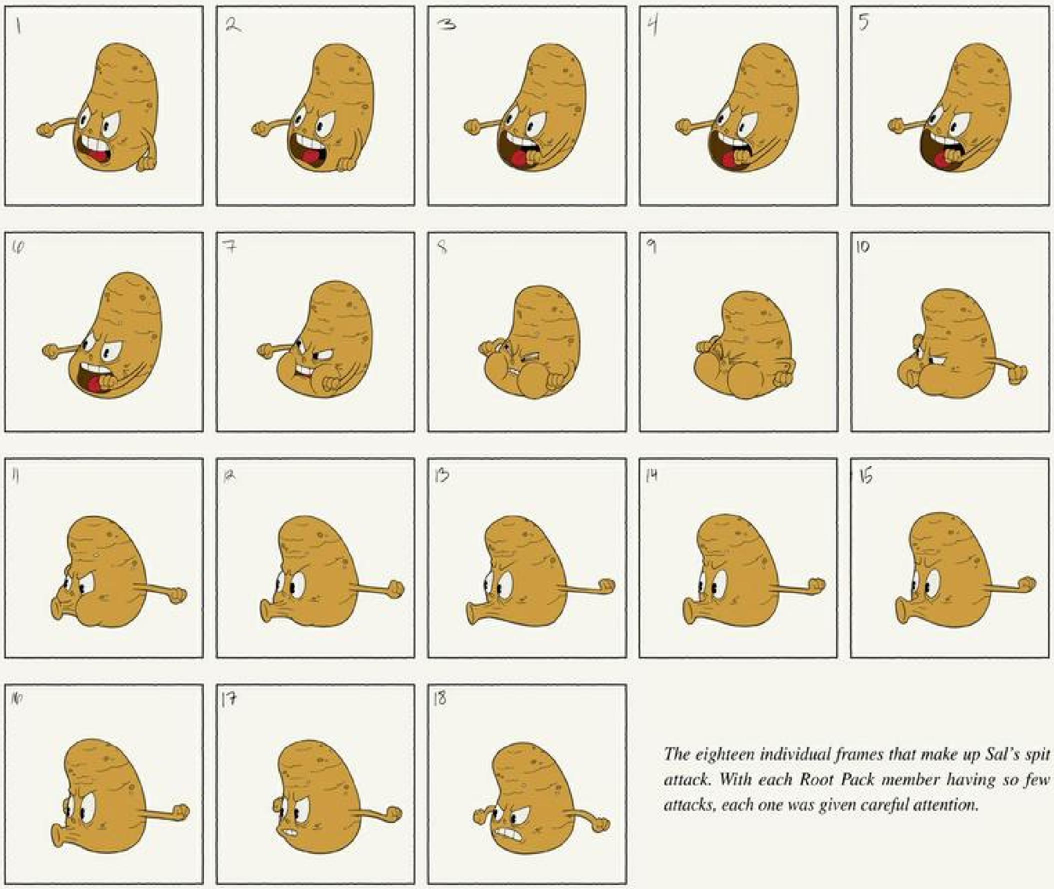
As for the name? We felt very fortunate with Sal Spudder in that his visual design aligned perfectly with a concept for what we should call him. After all, "spud" is a perfectly vintage-sounding word for potato.







Earthworms proved to be a perfect match for our parry system, allowing us to contrast brown dirt balls with their (perhaps exaggeratedly) pink exterior.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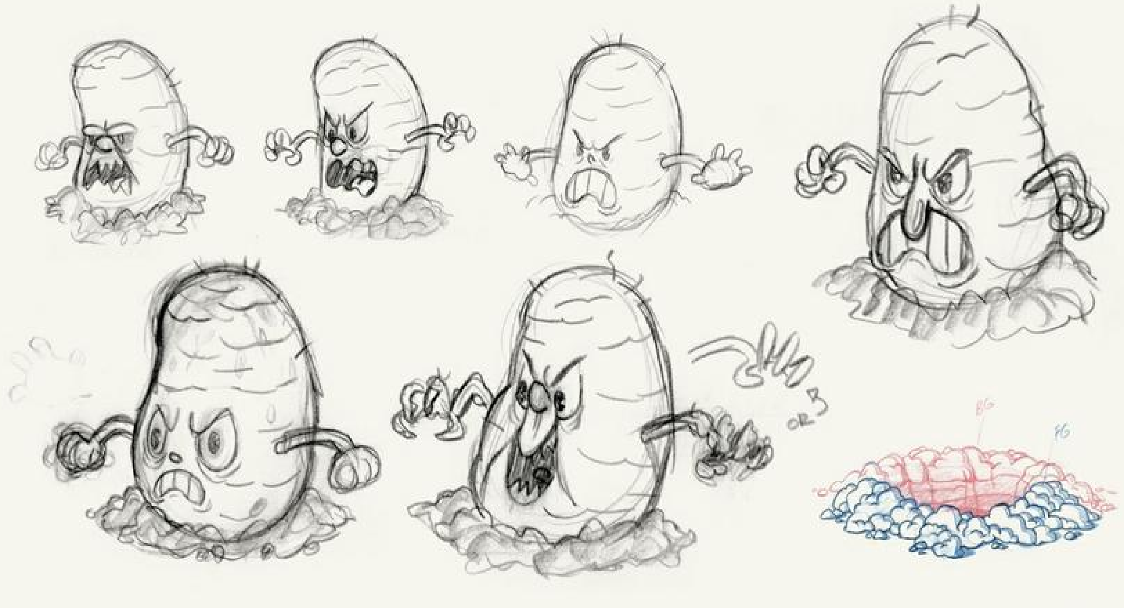
The eighteen individual frames that make up Sal's spit attack. With each Root Pack member having so few attacks, each one was given careful attention.

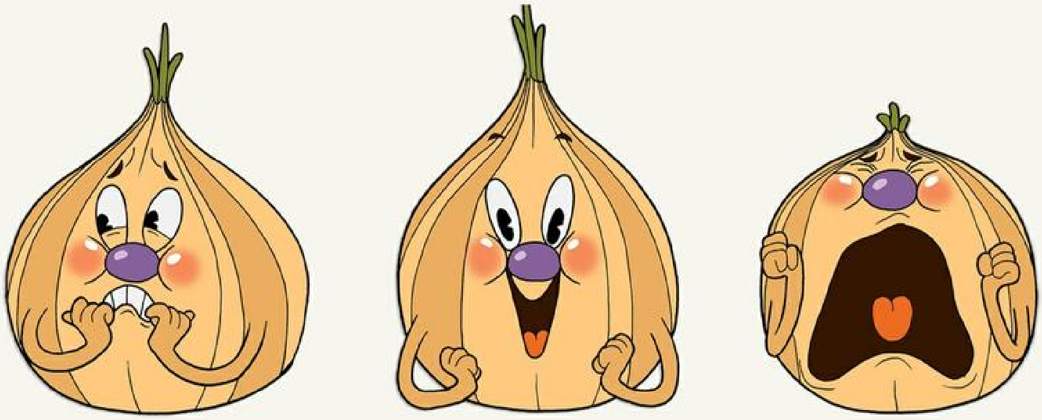


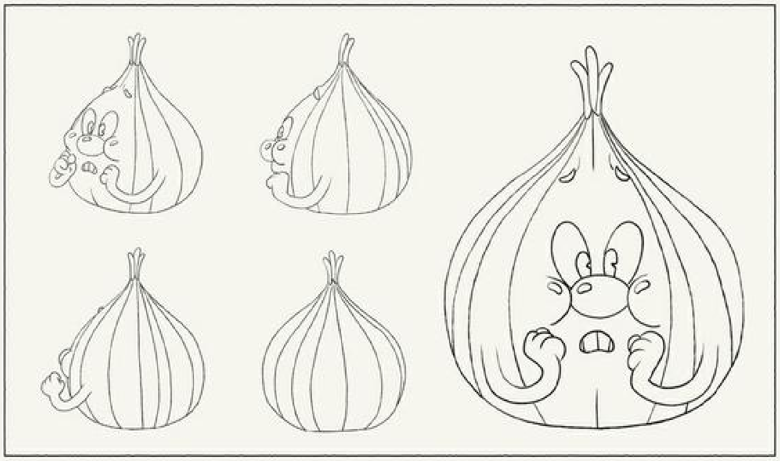
Ollie Bulb

ONCE WE STARTED SKETCHING OUT CONCEPTS for an onion that made itself cry, Ollie Bulb's personality and design quickly came into focus. Sometimes during development, this is how things worked: a clear, thematically strong artistic idea would emerge that would help anchor a character's visual and mechanical design right from the start.

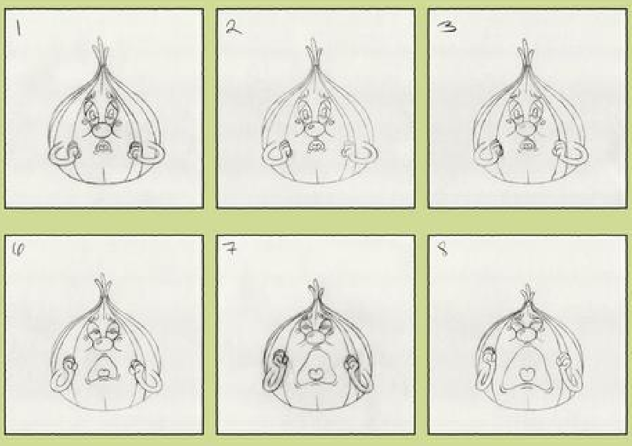
In Ollie's case, we liked the idea of fleshing him out as a contrast to Sal's rough and tumble attitude and Chauncey's sly and manipulative personality. In the grand scheme of things, we see Ollie as the more bashful follower in the Root Pack—a well-meaning tagalong who's perhaps a little in over his head!

This personality played well with the idea of keeping the character completely static during his phase of the battle, using his waterfall of tears as his only attack. From a design perspective, we hoped this would push players to practice horizontal movement as they darted from left to right to avoid the rain of tears from above. And if you happen to lose all your health in the process, don't be too rough on Ollie. He's having a hard enough time as it is.

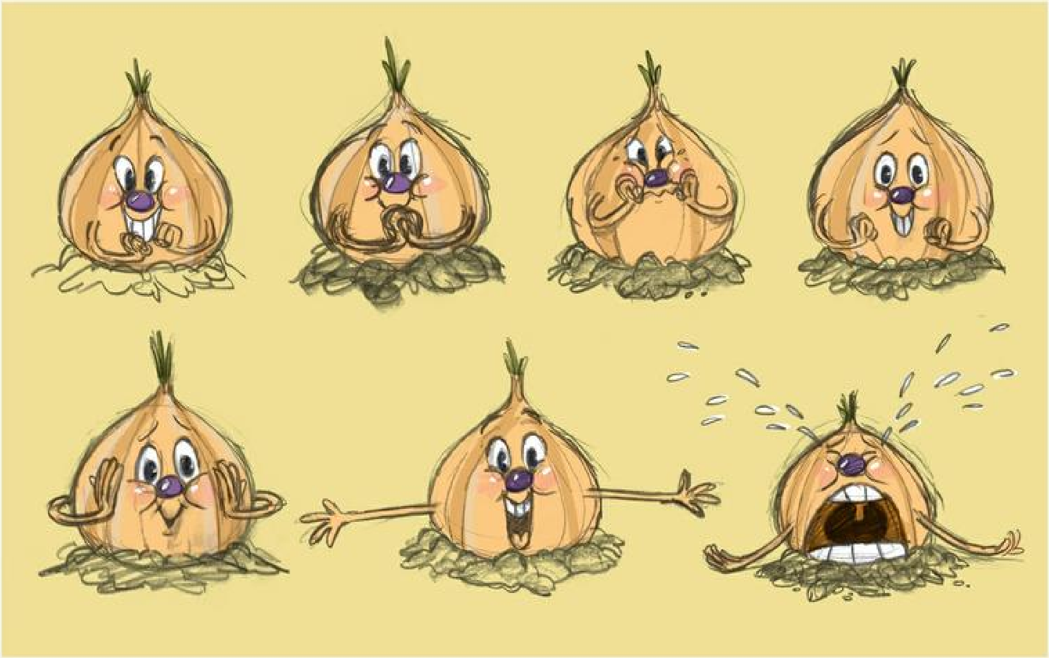




A set of character "turnarounds" for Ollie Bulb, showing him from every major angle. Even in traditional 2D animation, these turnarounds are essential for getting a sense of a character's size, and how you might orient them in a physical space.



Little-known fact: Ollie's signature "burst into tears" animation is a reference to the wailing baby in the 1937 Popeye short I Like Babies and Infinks.

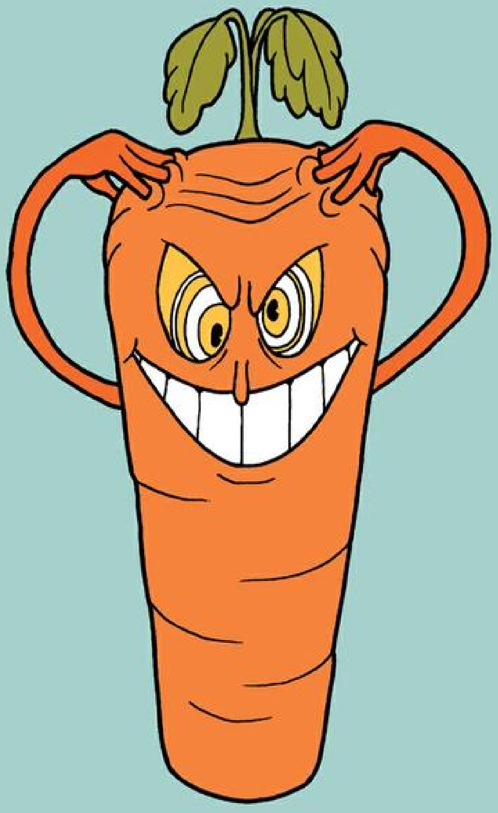


Chauncey Chantenay

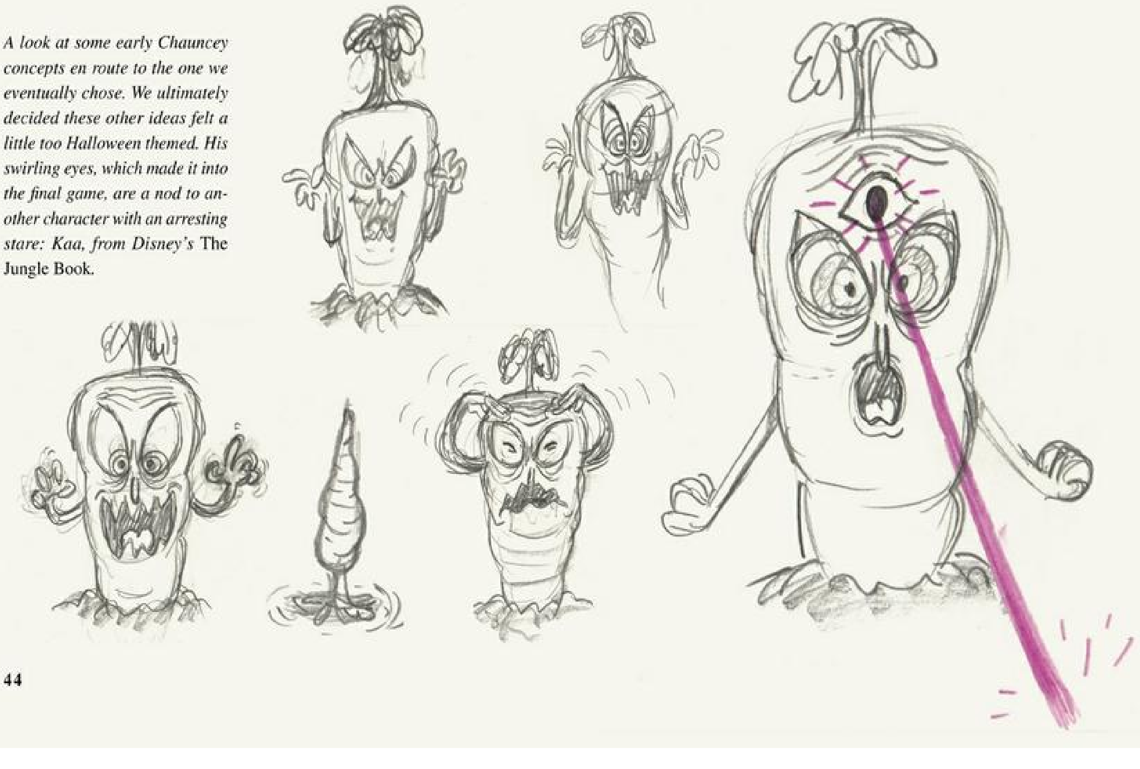
MISCHIEVOUS, MANIPULATIVE, AND MALEVOLENT, Chauncey Chantenay is very much the leader of the Root Pack. With Sal and Ollie being large and round, we decided quite quickly that we wanted the battle to culminate with a thin carrot summoning smaller carrots to fire at Cuphead.

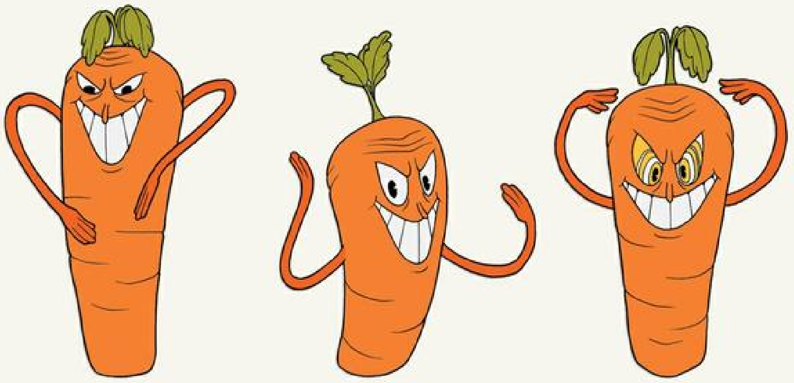
As part of this contrast, we also wanted to give Chauncey a more off-kilter aesthetic and personality. This meant drawing from a wider range of cartoon references, and even exploring outside the 1930s. In particular, Walter Lantz and Ben Hardaway's classic character Woody Woodpecker was a big inspiration for the zaniness at the heart of Chauncey's animations. Where things really coalesced, though, was during the concept phase with animator Hanna Abi-Hanna.

While working on character ideas for Chauncey, Hanna sketched a version of the character with a third eye on his forehead, shooting a beam (seen below). This clicked with our feelings about the character's personality right away, and we worked to ensure his attack patterns fit a character with psychokinetic powers, leading to the existence of the "energy ring" attack that he emits. In the great push and pull between art and design that exists in game development, Chauncey is an example of a character where a clever visual idea brought everything into focus.

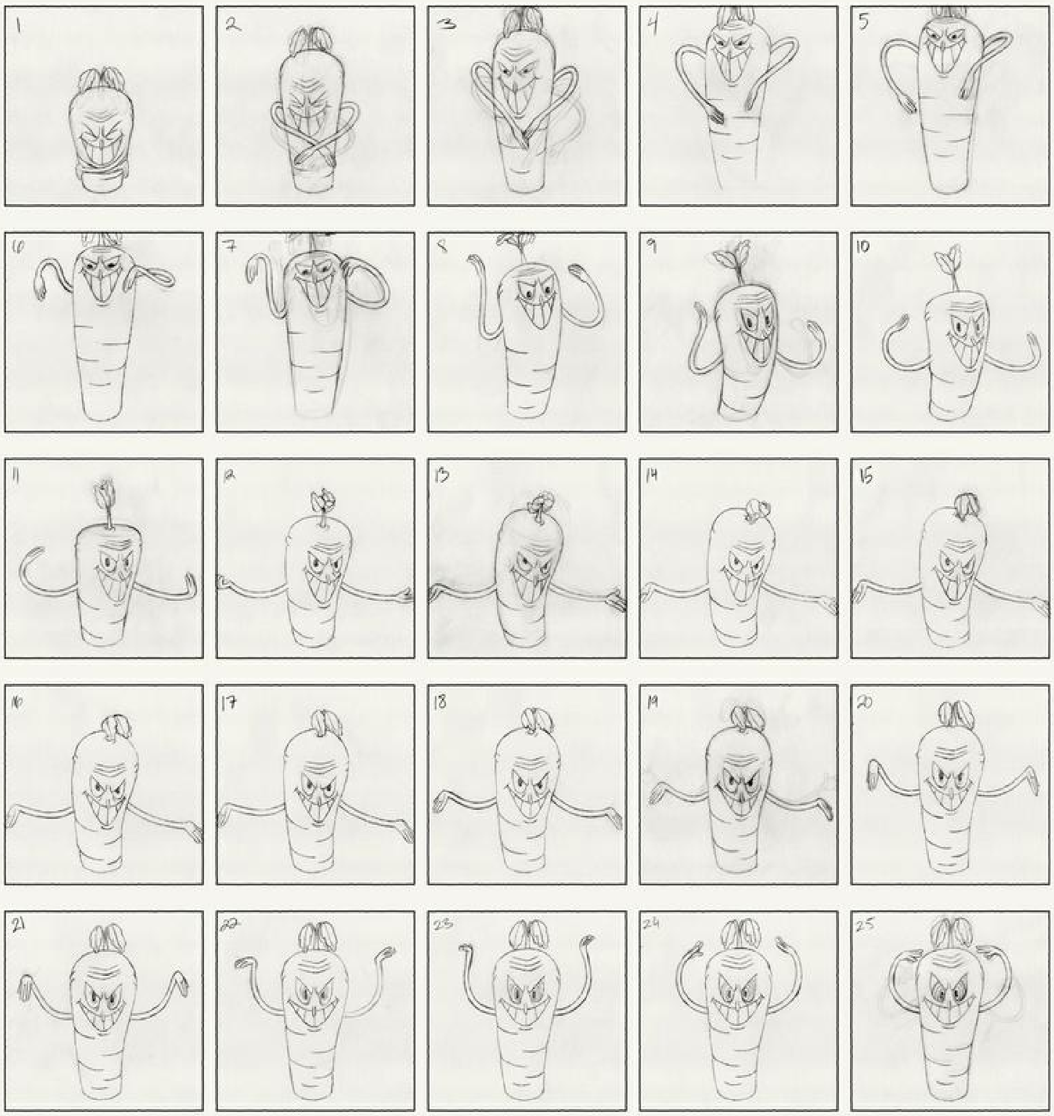


A look at some early Chauncey concepts en route to the one we eventually chose. We ultimately decided these other ideas felt a little too Halloween themed. His swirling eyes, which made it into the final game, are a nod to another character with an arresting stare: Kaa, from Disney's The Jungle Book.





Chauncey's twenty-five-frame fight introduction, setting the stage for the showdown to come. It was crucial to us that boss introductions really encapsulate character personality—in this case, loopy, confident, and giddy for a fight!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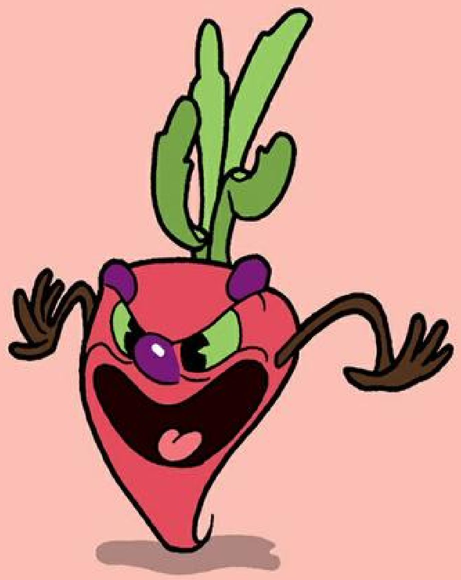
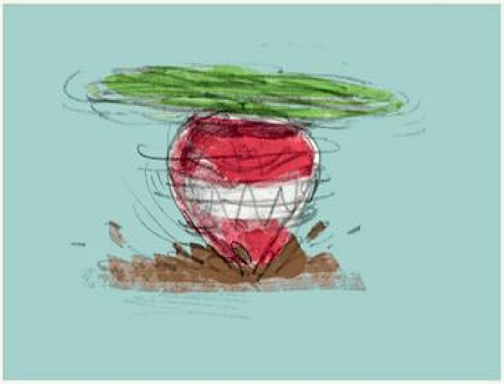
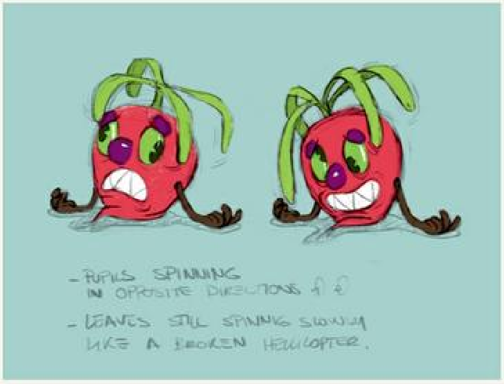
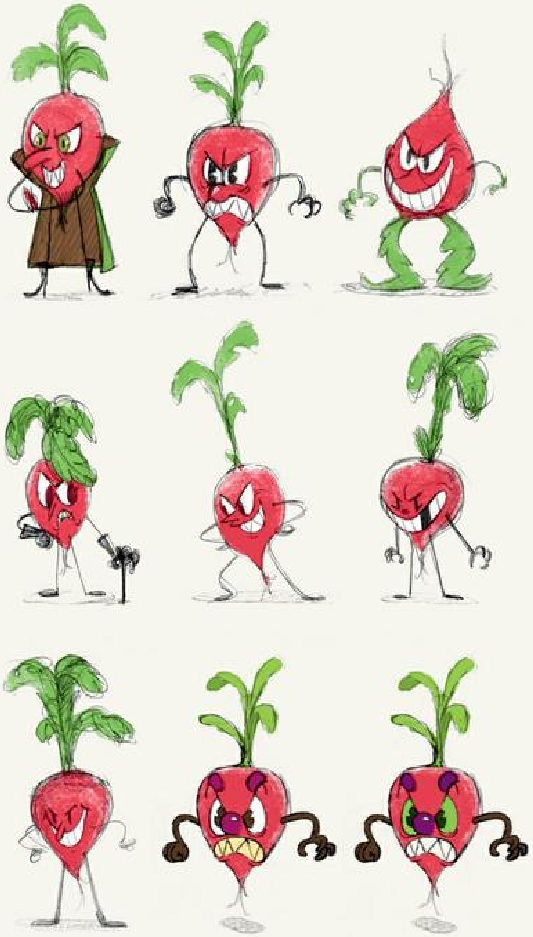
Horace Radiche

A LITTLE FELLA WITH A LOT TO PROVE, we originally envisioned Horace Radiche as a friend of the Root Pack that would appear during a "secret phase" of the fight. These phases were designed to be triggered if players executed a specific series of moves in the right order (or in the case of this fight, chose *not* to fire at Ollie Bulb for a few seconds after he appeared on screen). We even managed to design, program, and animate Horace in time for the game's September 2017 release! However, our grand ambition was to have one hidden boss secret in every Isle, and without secrets ready for the other two, we made the tough decision to initially leave Horace on the cutting room floor. Since release, however, we've gone back and added three boss secrets into the game—getting to see players discover Horace for themselves has been a total delight!





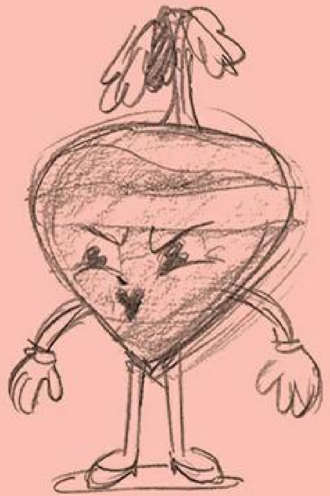


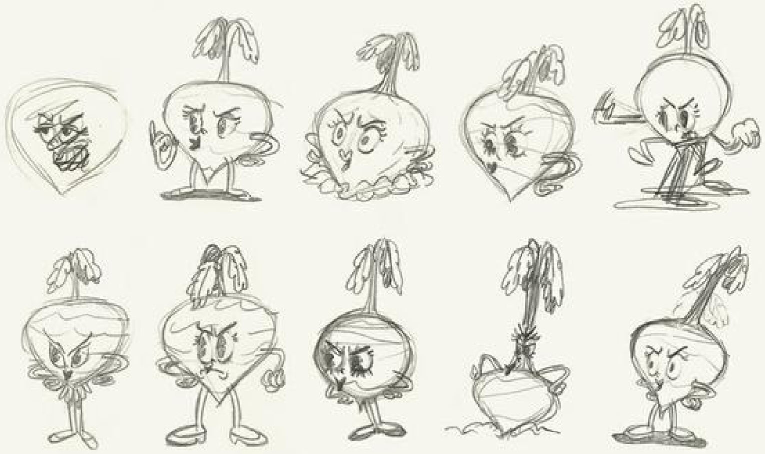


Concept art for Horace's fierce spin attack, which made it into the final game, alongside many "full body" versions of the character which did not.

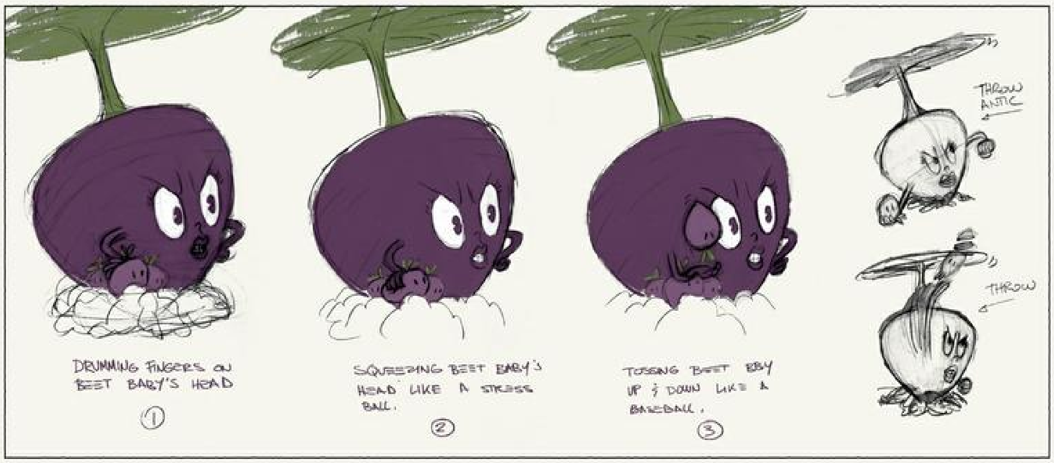
Beetrice Lutz (Unused)

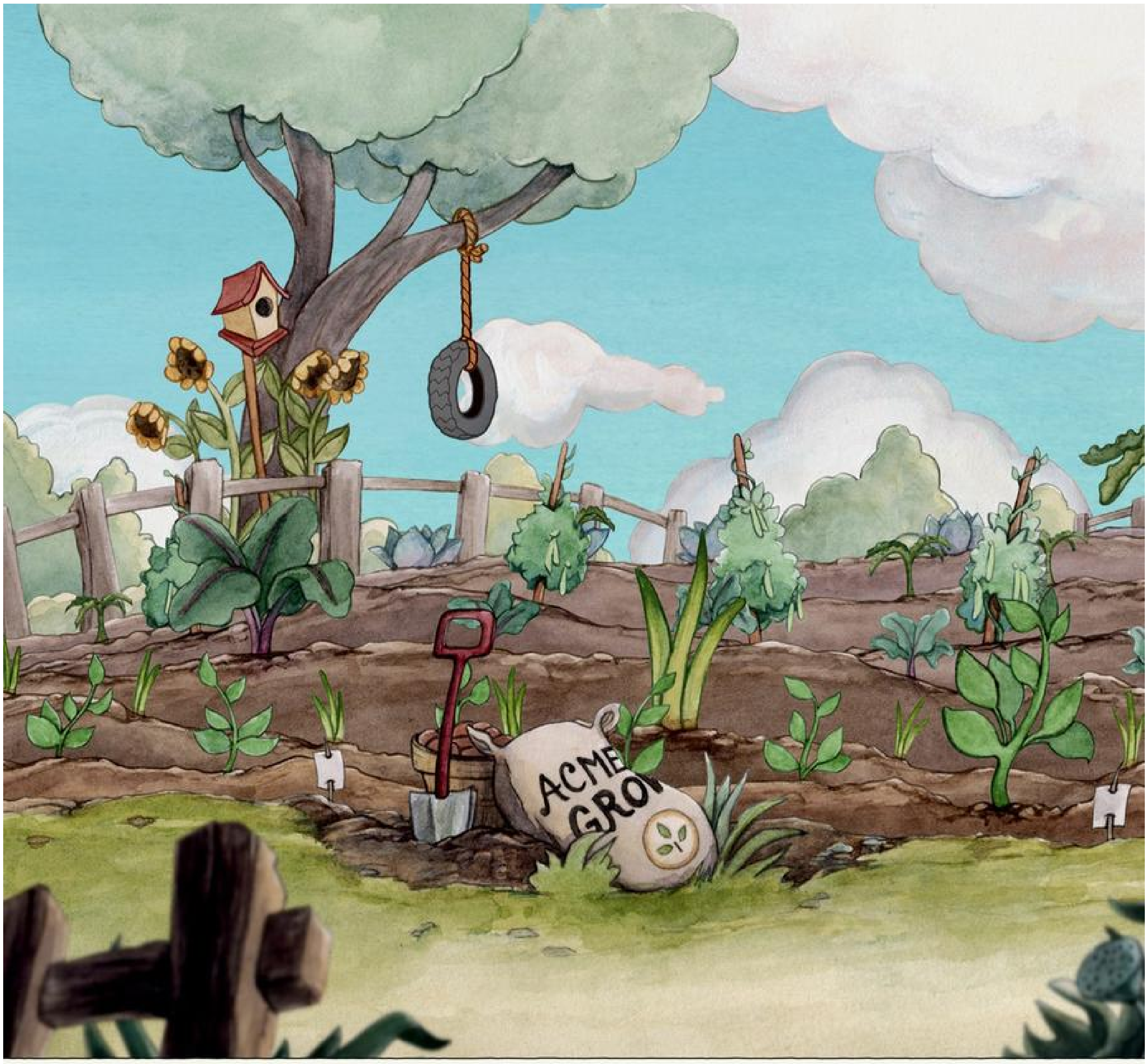
ORIGINALLY SET TO APPEAR DURING the third or fourth phase of the Root Pack fight, the ornery Beetrice Lutz wants you out of her garden, at any cost. As seen below, her primary attack would have had her plucking her "beet babies" up from the ground, tossing them into her whirring leaves, and launching the resulting slices at you in arcs. While exactly the kind of macabre, pre–Hayes Code concept that would have been at home during the 1930s, we ultimately had to keep Beetrice planted underground as the final design of the fight took shape. In addition to the obvious "beet" pun in her name, we also snuck in a reference to a favorite character of ours from the original *Phantasy Star*, Noah. Or, as he was called in the original Japanese version of the game, Lutz.





Quick character and personality sketches for Beetrice, exploring a possible version of with legs, as well as a personal favorite of ours with the eyes on the stalks rather than the beet itself.


DRUMMING FINGERS ON BEET BABY'S HEAD
①
SQUEEZING BEET BABY'S HEAD LIKE A STRESS BALL.
②
TOSSING BEET BBY UP & DOWN LIKE A BASEBALL.
③
THROW ANTIC
THROW

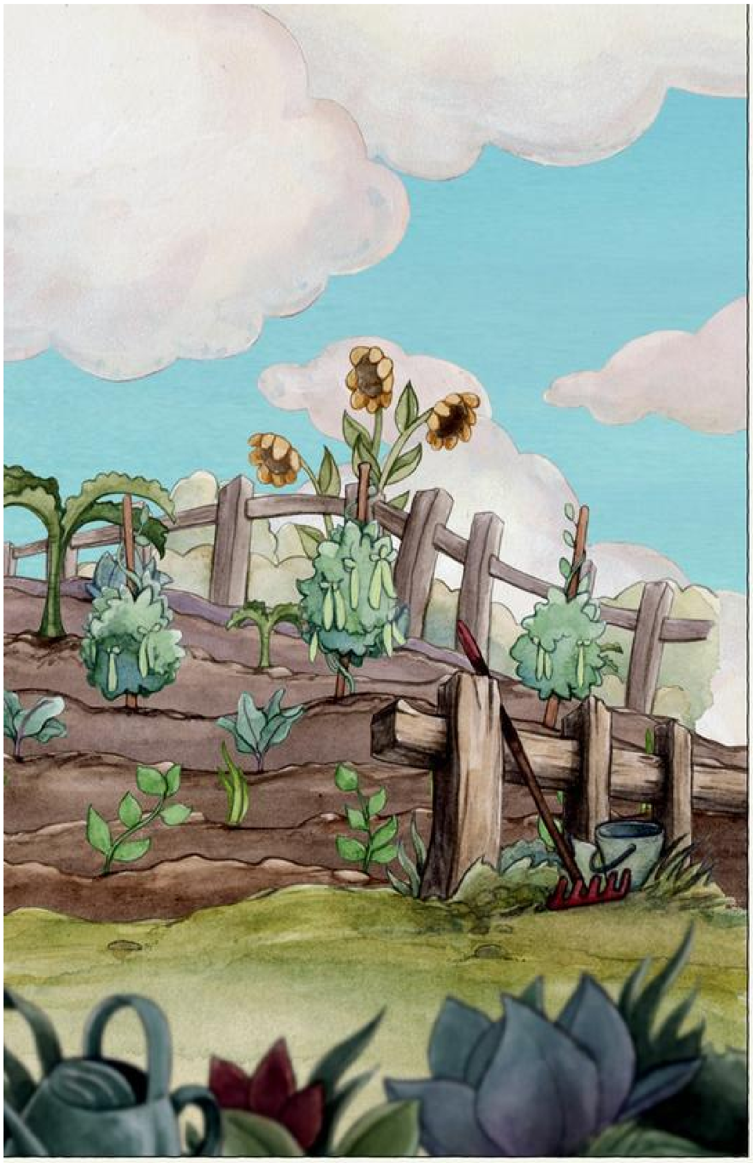


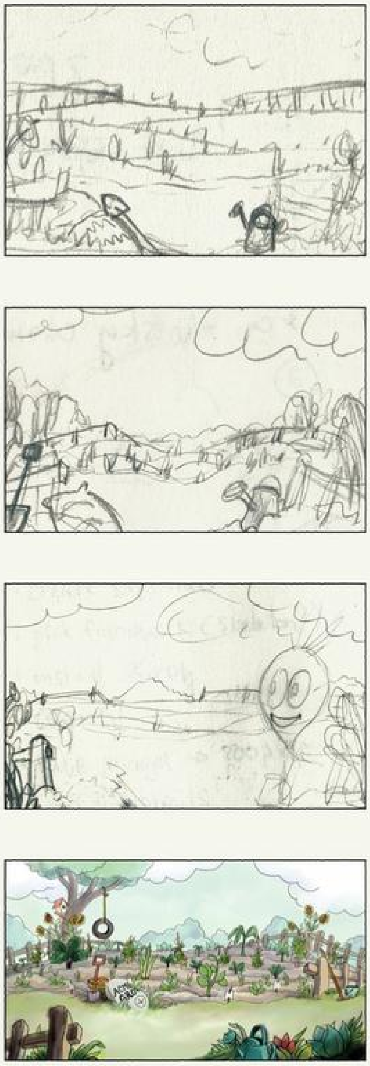
Botanic Panic! Background

THE FARM WHERE THE ROOT PACK lives is densely layered—both with references, and in the literal sense of the word. One of our big goals with all of *Cuphead*'s backgrounds was for them to have a real sense of depth, to give players rich details to notice during repeat attempts on a boss. In the case of the background above, background painter Caitlin included eleven separate watercolor layers to create the effect of a vegetable patch teeming with plant life and stretching far back into the distance.

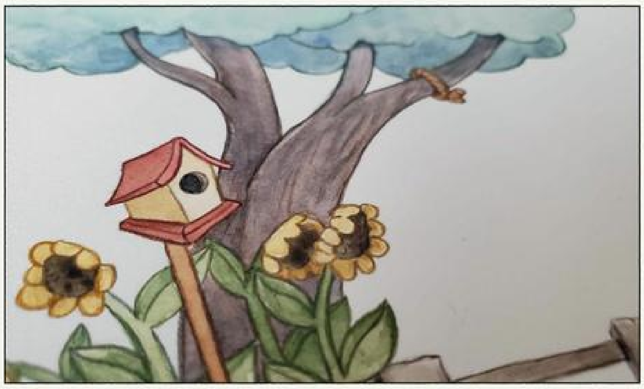
If you scan the field, you can see that we included stalks and leaves that directly match the three main bosses. On the other hand, the pea plants that can be seen are call-outs to a set of pea-pod enemies we had originally designed to drop into the fight from above, but which never made it into the finished design. Tucked away in the top left of the screen is a small birdhouse, which we wanted to include to foreshadow the Isle Two boss Wally Warbles, and to the build out the continuity of the game's world a little further.

The Root Pack's background also marks the first (but not last!) appearance of an ACME product, in the form of ACME GROW fertilizer. A mainstay generic brand in so many of the cartoons that inspired us during development, it felt only right to include it in *Cuphead*.



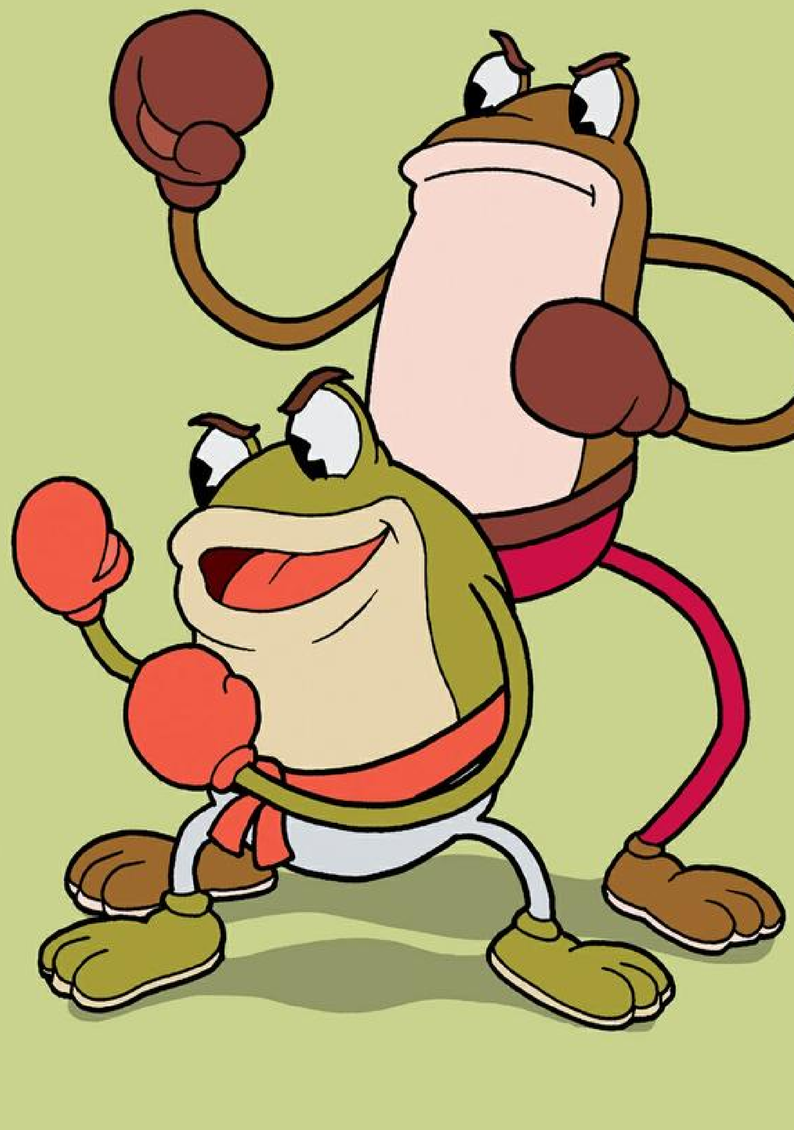


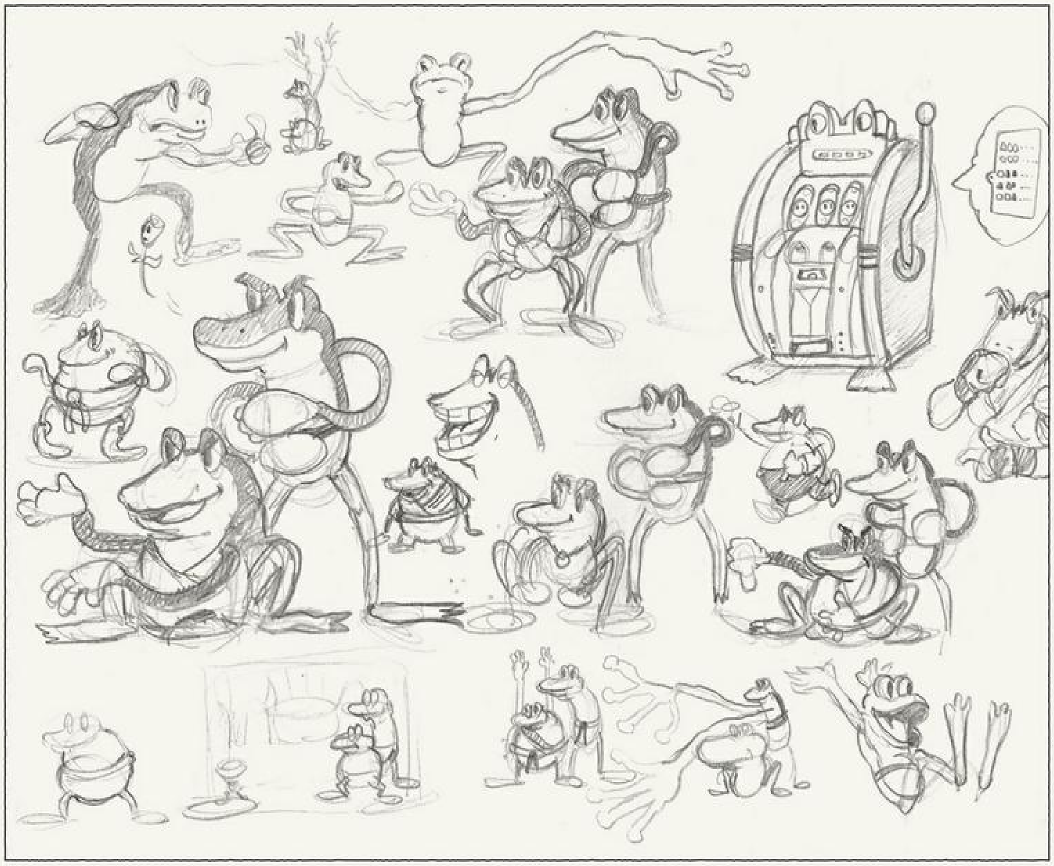
Every background in Cuphead *went through a detailed concept process that began with a high-level rough sketch from Chad (pictured top), proceeded through several rounds of rough concept work, and eventually culminated in a digitally created "color key" (pictured bottom), which served as a guide for Caitlin as she painted the background by hand.*

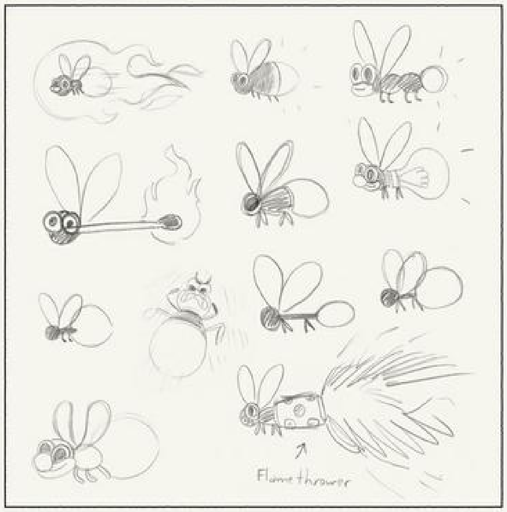


Ribby and Croaks
in
“CLIP JOINT CALAMITY”

BORN ON THE WRONG SIDE of the lily pad, Ribby & Croaks have the unique distinction of being the only two characters in the game besides Cuphead & Mugman who are brothers. We always saw them as well-meaning hooligans with hearts of gold and a lot of moxie—sometimes a little *too much* moxie. Touchstone inspirations for these amphibian brawlers include Ub Iwerks’s Flip the Frog, and the *Street Fighter* series of games which we were obsessed with growing up (whose well-known fighters Ryu & Ken are the reference point for Ribby’s & Croaks’s outfits).





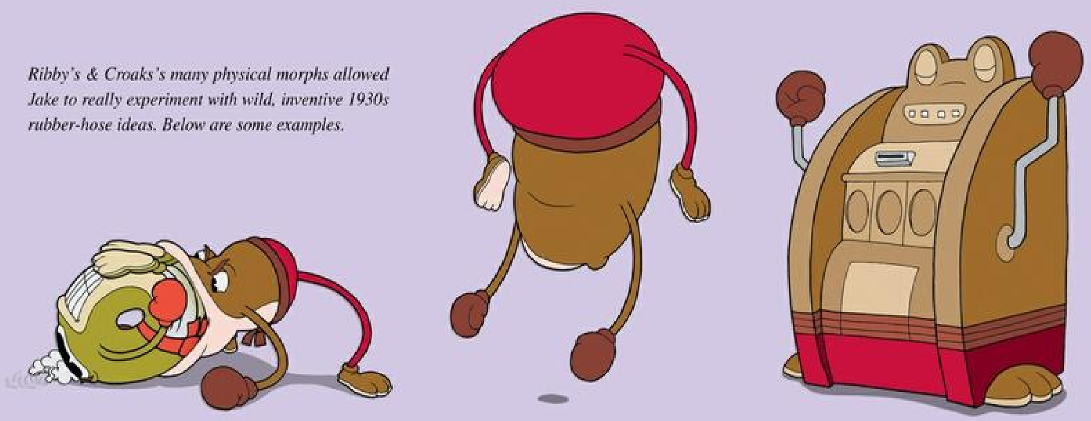


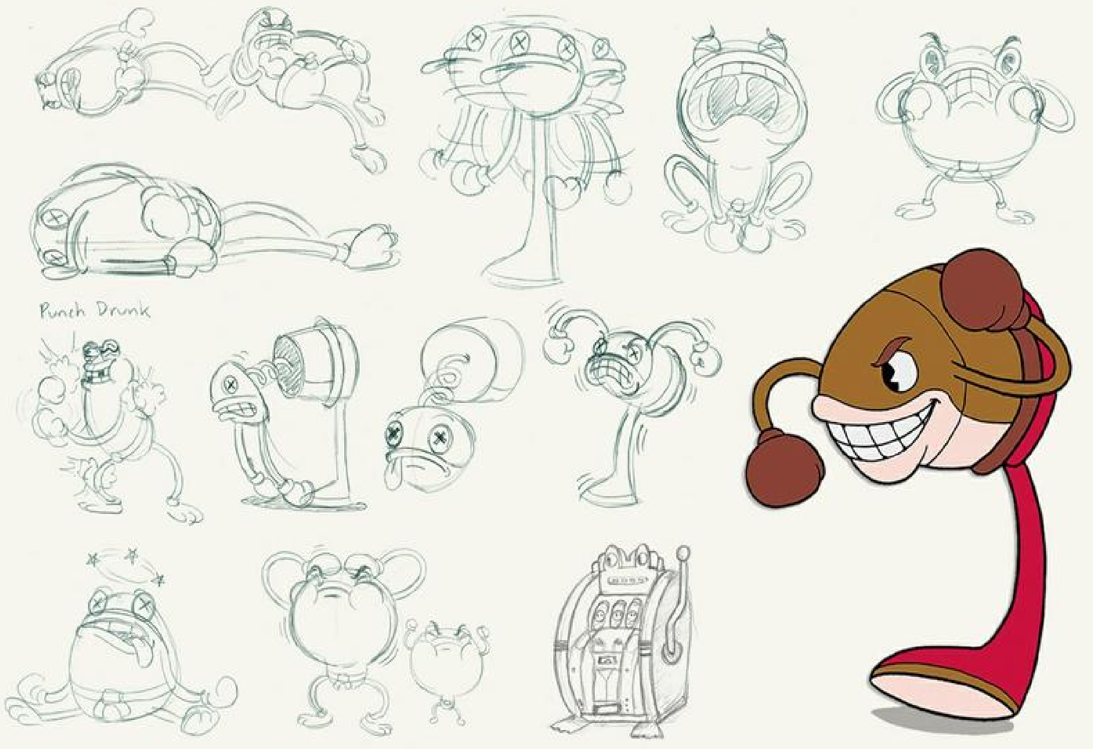
Early concepts by animator Thomas Smolenski for the firefly enemies from phase one of the fight. A nod to Street Fighter*'s Dhalsim.*

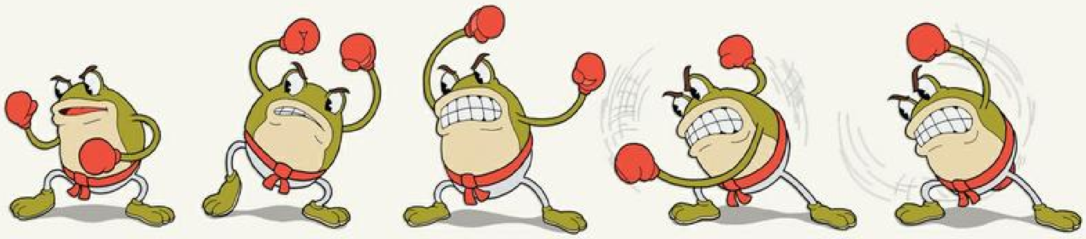
We had initially planned for Clip Joint Calamity to be a much different fight altogether. The original idea for this brawl involved two health bars descending from the top of the screen and adding a completely custom move set for Cuphead and Mugman, with classic *Street Fighter* moves like the Fireball and Dragon Punch. However, we ultimately decided to keep the design more in line with the rest of *Cuphead*'s boss battles for the sake of consistency and pacing. That doesn't mean we pulled back on packing the level full of *Street Fighter* references, however!

The final phase of the fight involves three slot machine attack patterns: a bull symbol causing blue flames (think: M. Bison); a tiger symbol causing orange balls (Sagat!); and finally, a snake symbol causing a speedy attack (Vega!). All the while, each platform that emerges from the slot machine is surrounded with spikes that represent Chun Li.

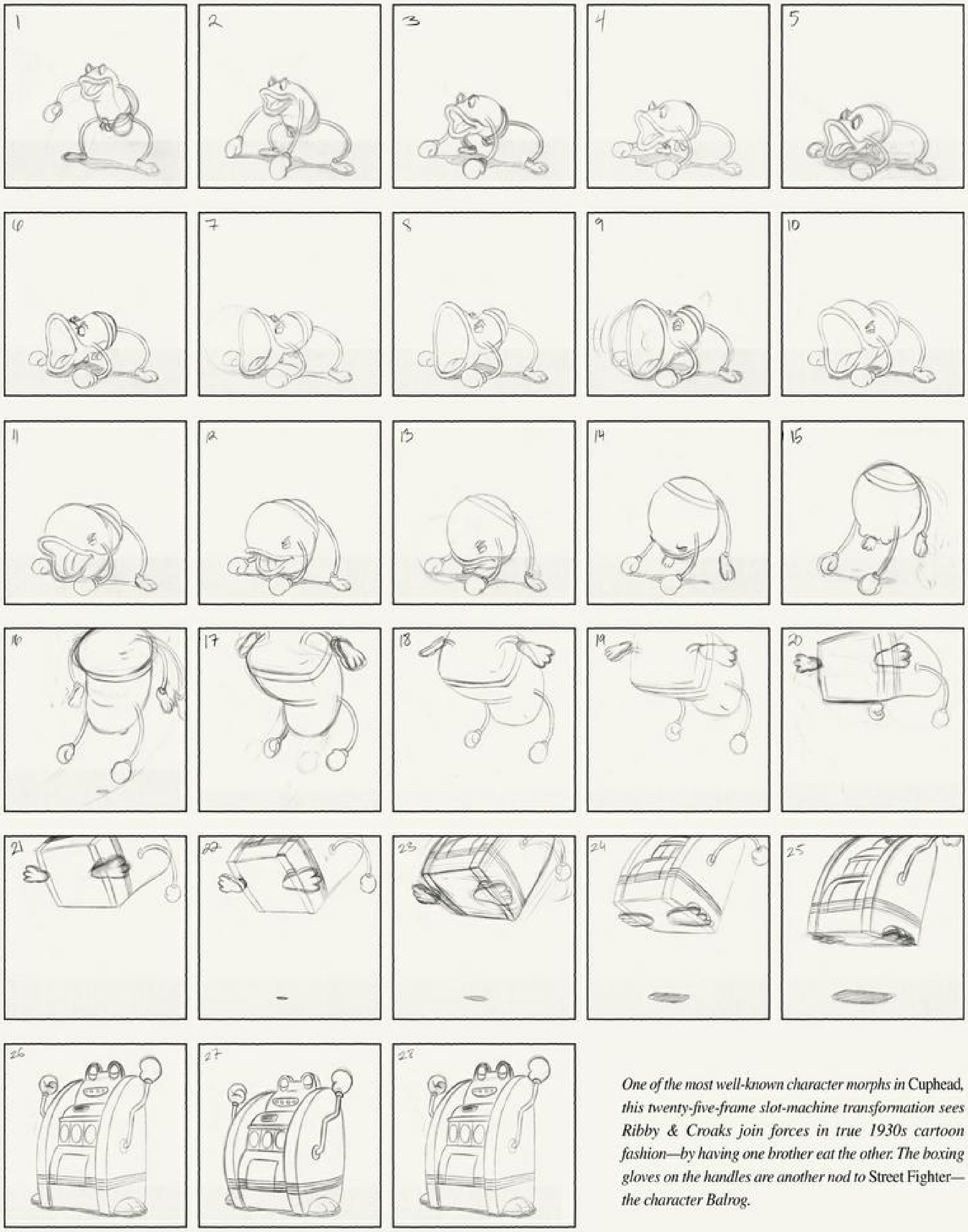
Ribby's & Croaks's many physical morphs allowed Jake to really experiment with wild, inventive 1930s rubber-hose ideas. Below are some examples.







"Crude and bad, 'cause we're
from the wrong side of the lily pad."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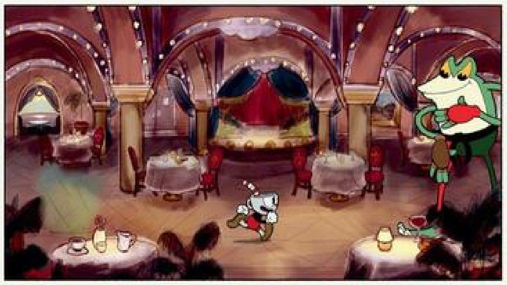
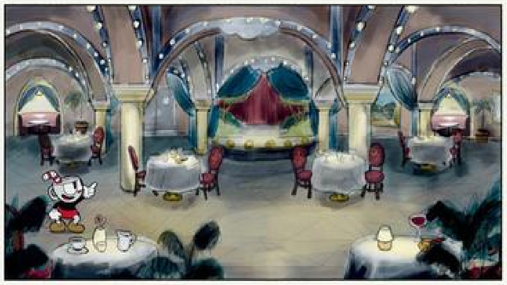
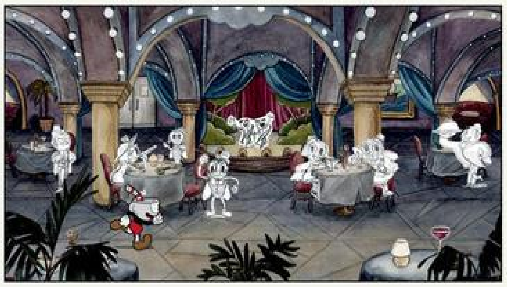
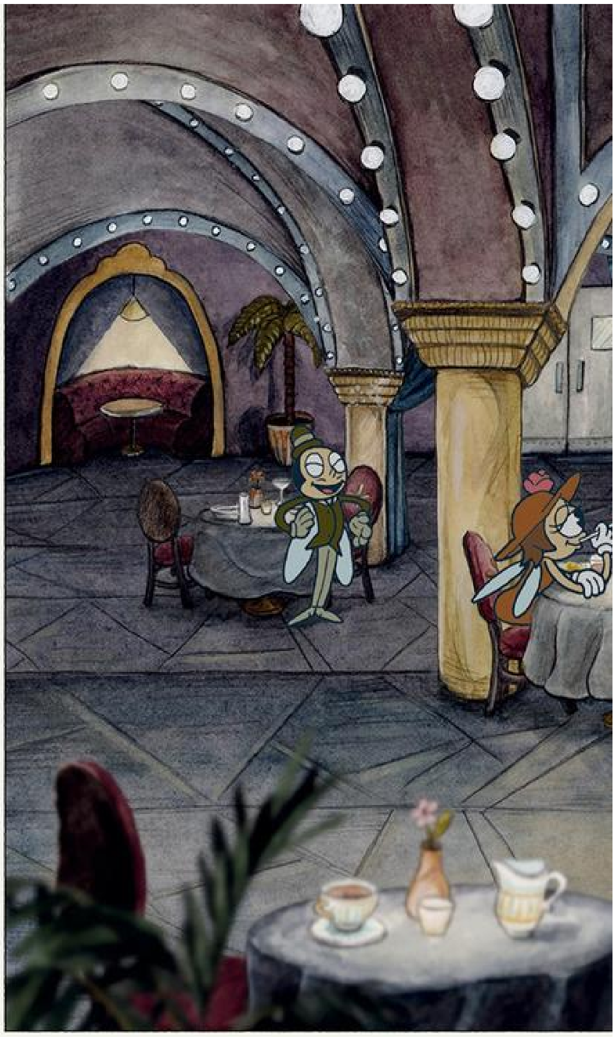
One of the most well-known character morphs in Cuphead, *this twenty-five-frame slot-machine transformation sees Ribby & Croaks join forces in true 1930s cartoon fashion—by having one brother eat the other. The boxing gloves on the handles are another nod to* Street Fighter*—the character Balrog.*



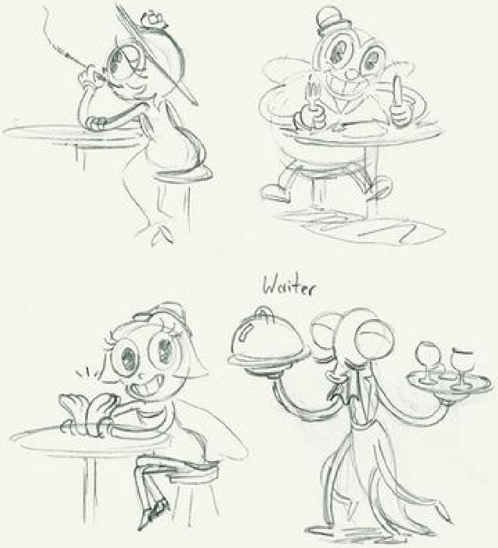


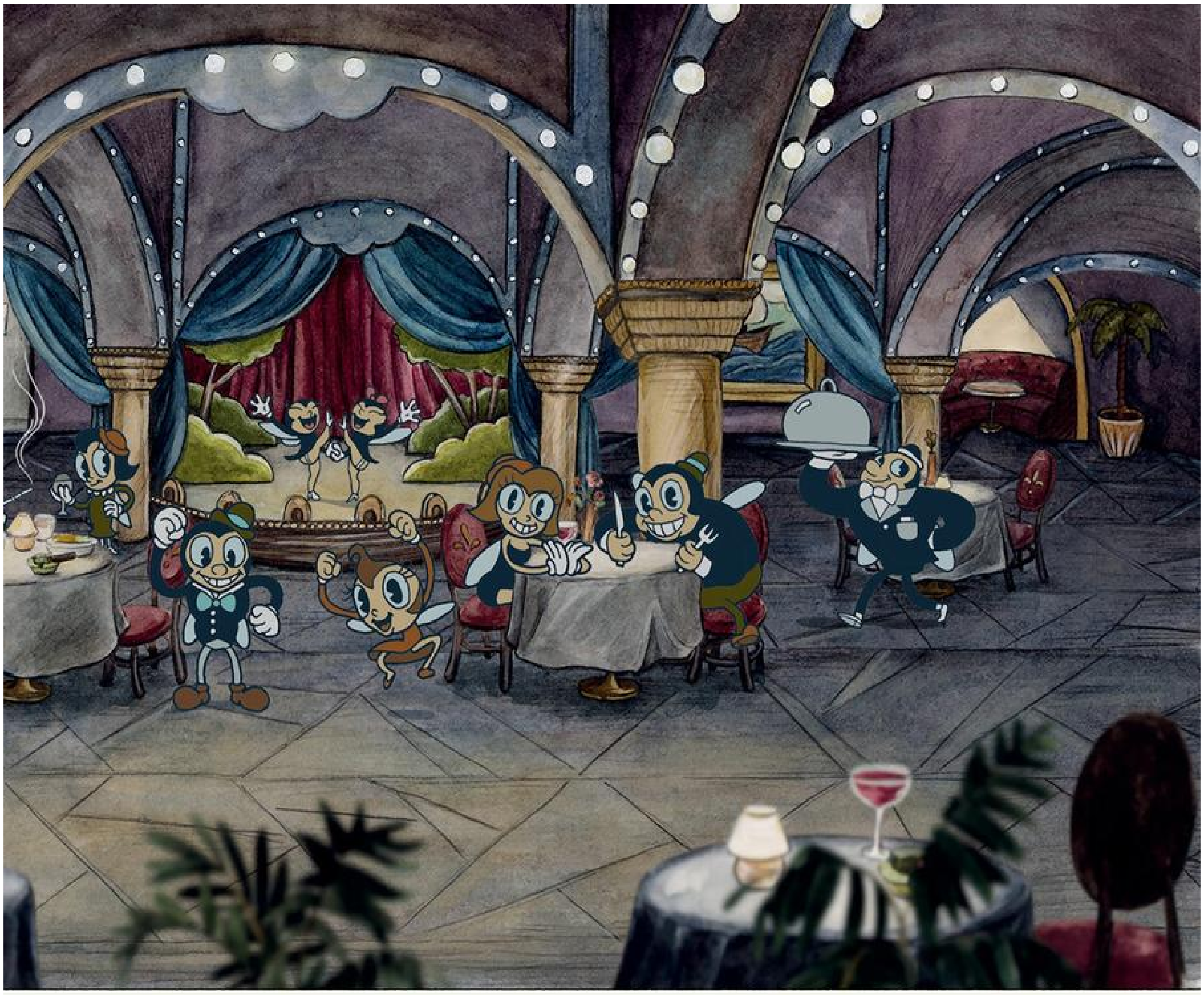


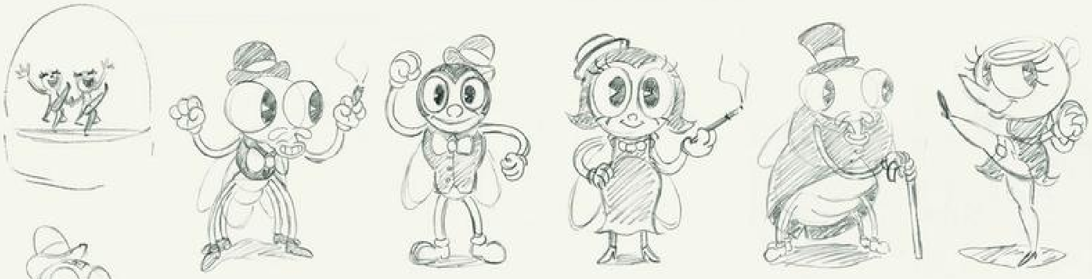


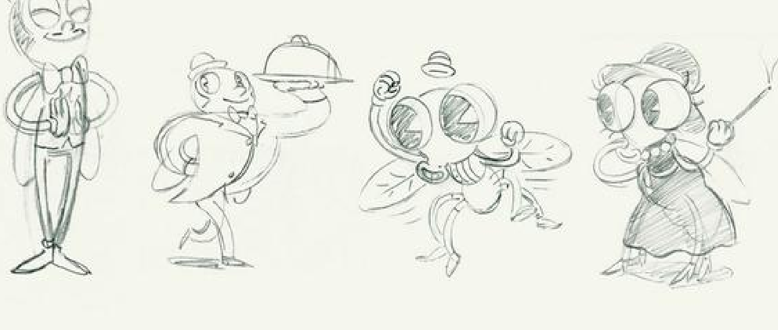
Clip Joint Calamity Background

WITH THE NIGHTCLUB IN Clip Joint Calamity, we wanted to make reference to the style and architecture of the 1930 Fleischer Studios short *Dizzy Dishes*—notably, the debut appearance of iconic cartoon character Betty Boop. At the same time, a club full of eager patrons taking in the night's entertainment offered us the chance to further tie this boss battle to fighting game classics, whose backgrounds are often dotted with non-playable characters cheering on the match. If you look closely, you may even find that some crowd members here bear subtle resemblance to crowd members in developer Capcom's *Street Fighter II*. Speaking of looking closely, you may or may not have noticed that there's a painting (of a painting) half-visible in the right-hand corner of the club, depicting a pirate ship, hinting at the future appearance of the salty sailor Captain Brineybeard as one of the game's bosses.

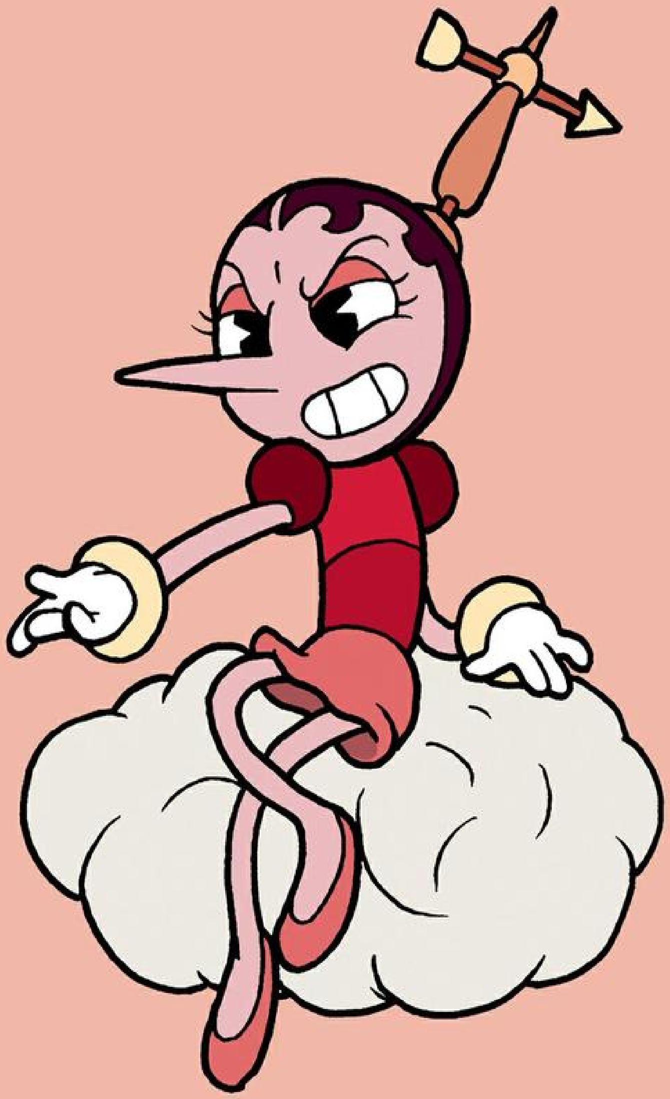






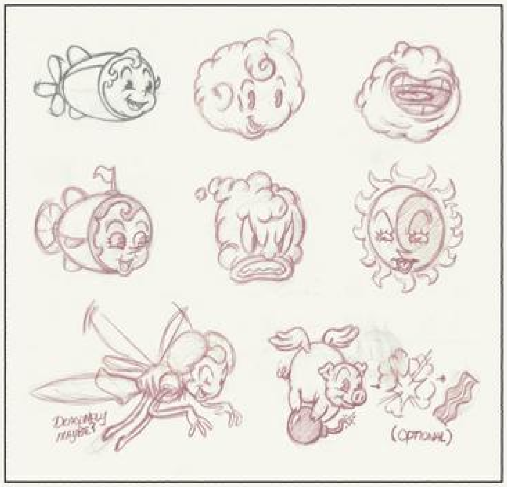


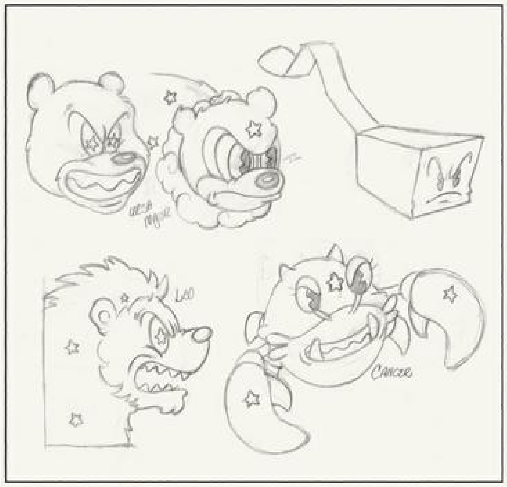
Pencil concept sketches of the many Clip Joint Calamity club-goers, partially inspired by toons like Fleischer Studios' The Cobweb Hotel *(1936) and Disney's* Woodland Café *(1937). While we initially considered a variety of bugs, something about a club full of flies watching two frogs felt perfectly off-kilter.*

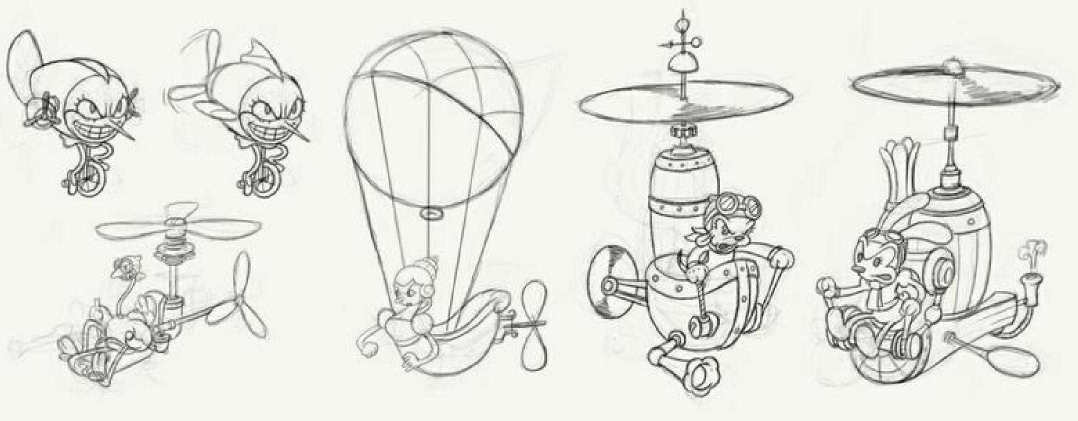


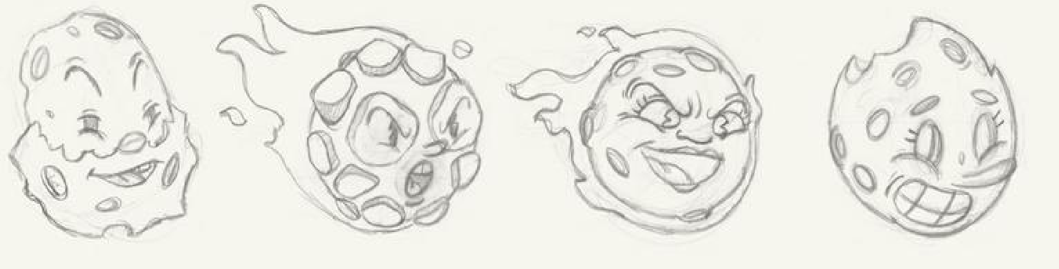
Hilda Berg
in
"THREATENIN' ZEPPELIN"

ONE OF THE THINGS THAT SURPRISED even us as we developed *Cuphead* was just how many possibilities and designs would come out of mixing the 1930s cartoon aesthetic with references and nods to our favorite games of the 80s and 90s. There's perhaps no better example of this than the magical, mischievous Hilda Berg. Inspired by one of the power-ups found in Sega's *Alex Kidd in Miracle World*, our initial high-level idea for Hilda was a boss formed from a weather vane riding a peticopter.







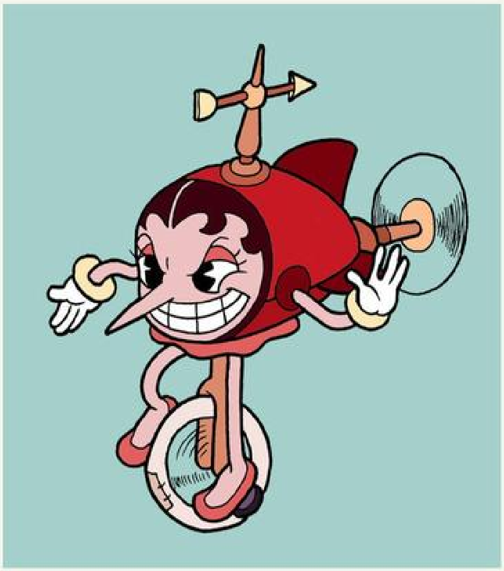


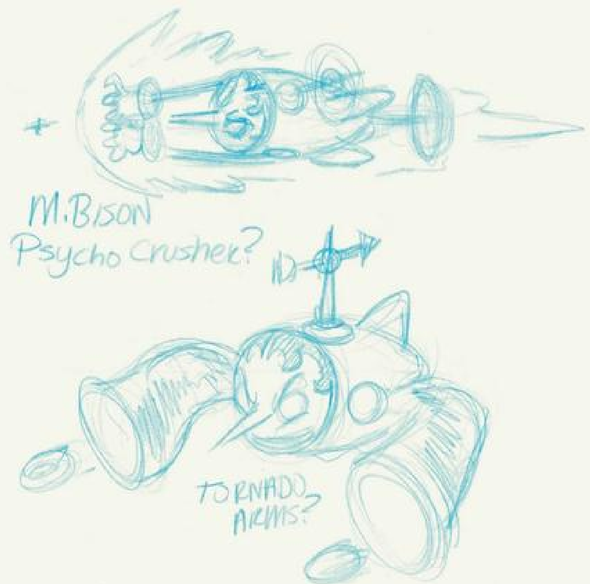
With Cuphead and Mugman flying planes, we knew we needed a fight in the skies for an early "shoot 'em up (or "shmup") battle, so we looked for ways to capitalize on that motif. This almost immediately brought to mind another one of our run-and-gun favorites—Konami's *Contra: Hard Corps*. In particular, an early boss from that game, Noiman Cascade, whose first phase saw him turning stars into constellations that would charge and fire at the player. Concepts like the ones above came from this type of brainstorming, as we explored which astrological signs might best lend themselves to coherent attack patterns (and, later, considered different celestial forms for Hilda's final phase transformation).

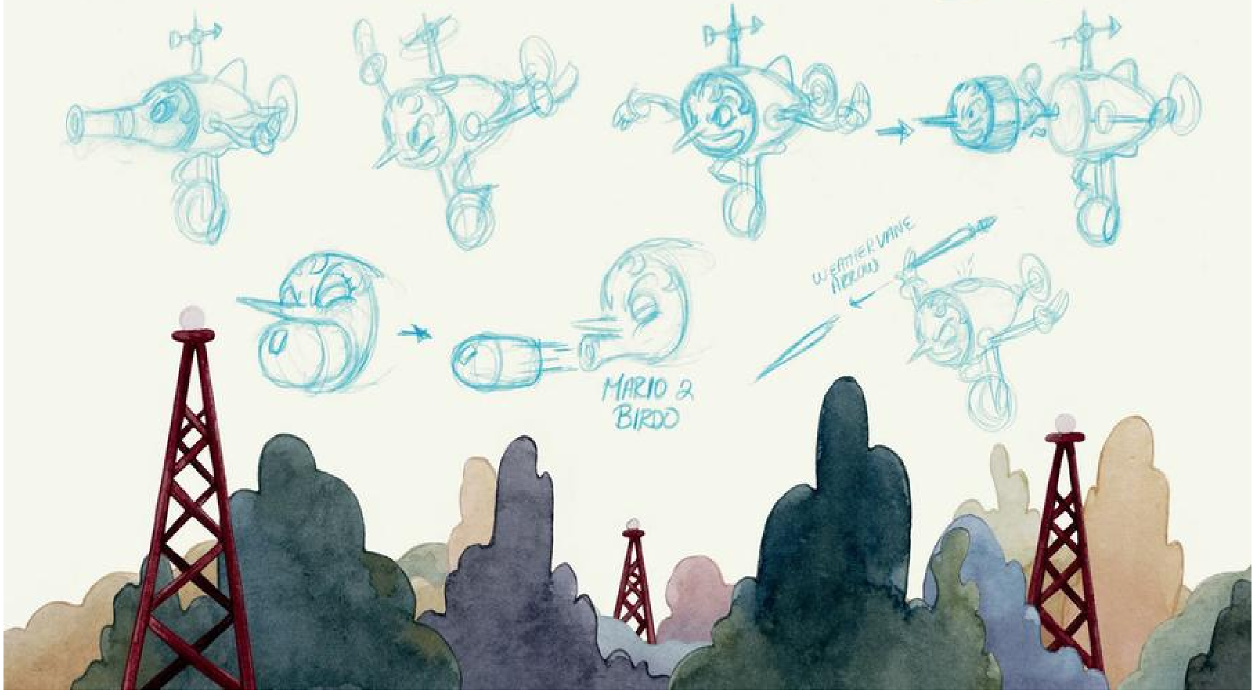
This was often what the process of designing bosses was like: coming up with a core concept to orient our thinking, and then riffing off that concept to see which cartoon, video game, or film inspirations it guided us to. Light on rigid structure to start and heavy on improvisation—in many ways, like jazz.

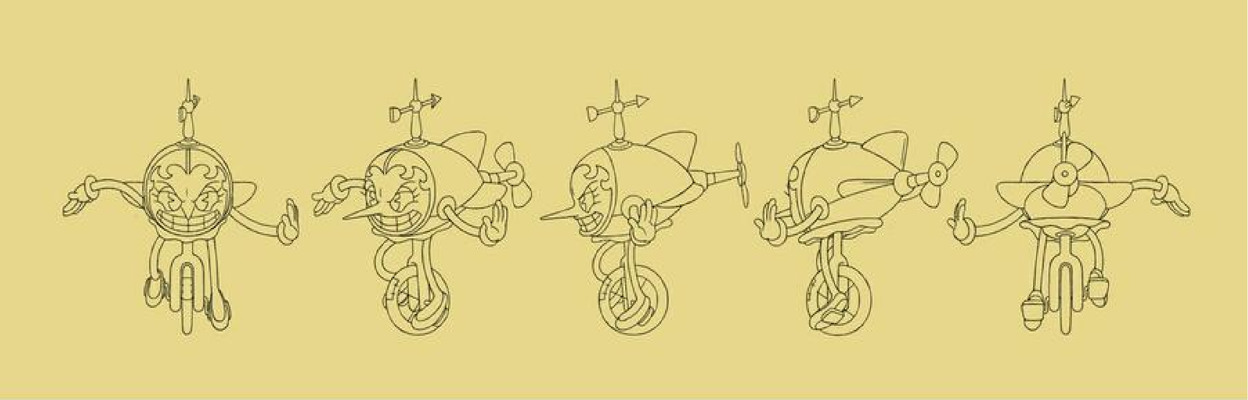
Something we always had to balance when designing boss attacks in *Cuphead* was the desire for visual flourish and the need for legibility. Especially in the case of attacks players were likely to see multiple times in a fight, or multiple times in quick succession, it proved important to give ourselves constraints, and reign in more over-the-top ideas in favor of ones that would not be too visually noisy for the player.

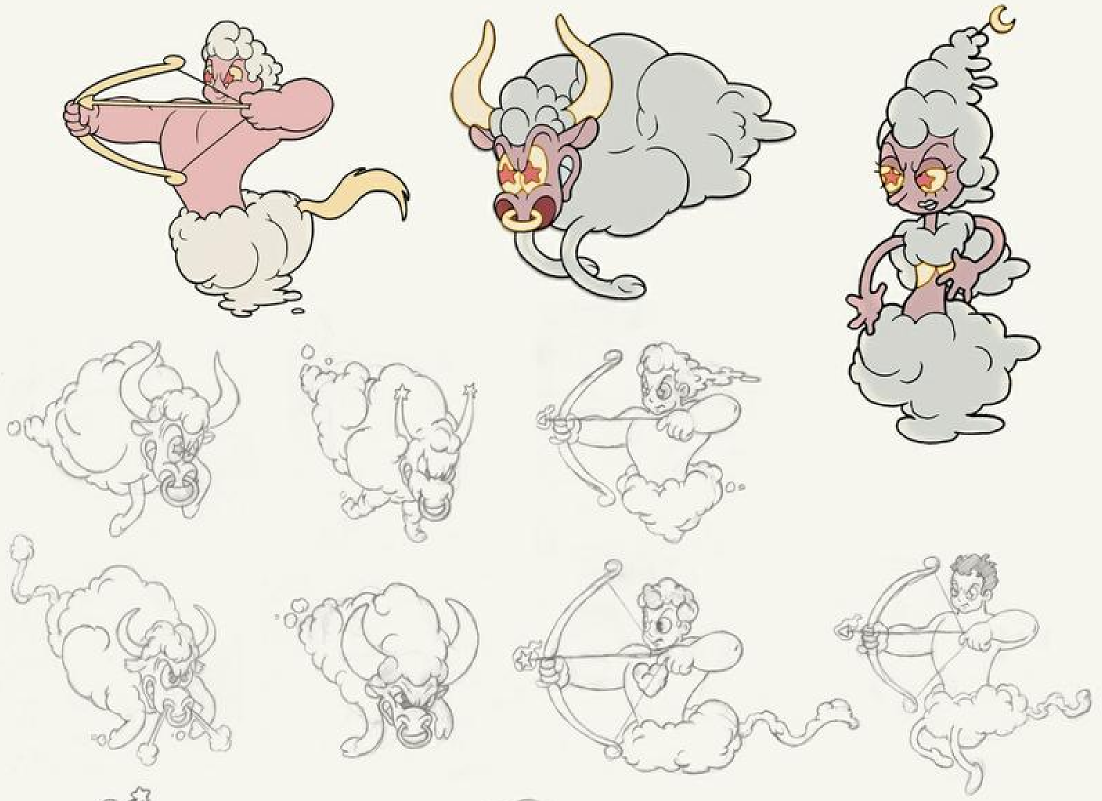
Still, it's a lot of fun to look back at these first phase attack concepts from Hilda animator Joseph Coleman, inspired by everything from *Street Fighter* character M. Bison's Psycho Crusher attack to the projectiles shot out of Birdo's mouth in Nintendo's *Super Mario Bros. 2*. Ultimately, the "HA HA" word projectiles we ended up using struck the right balance of visual interest and simplicity, and even marked the first time we used words in a boss attack. As an added bonus, they allowed us to give a nice nod to early *Felix the Cat* cartoons, where a character's words would come alive and cause mischief.

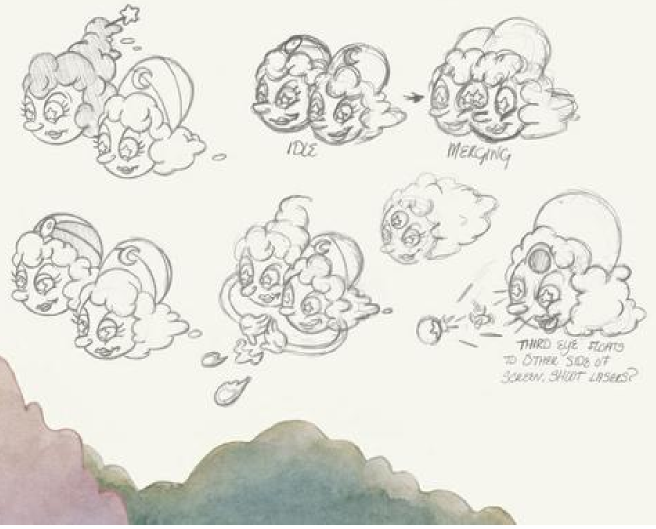



M.BISON
Psycho Crusher?
TORNADO ARMS?

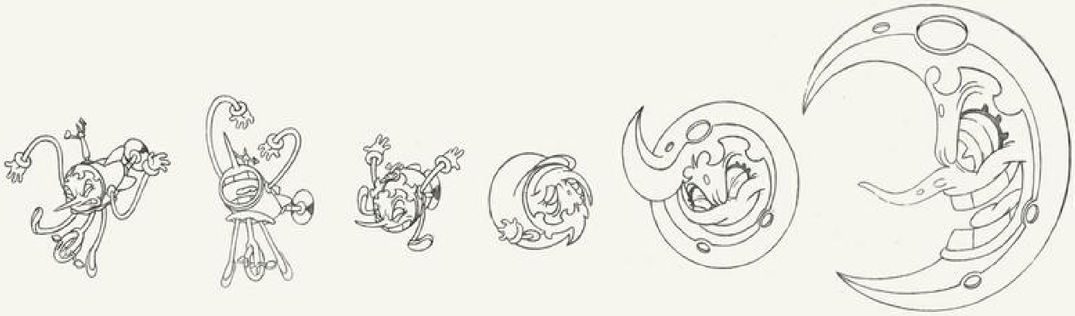






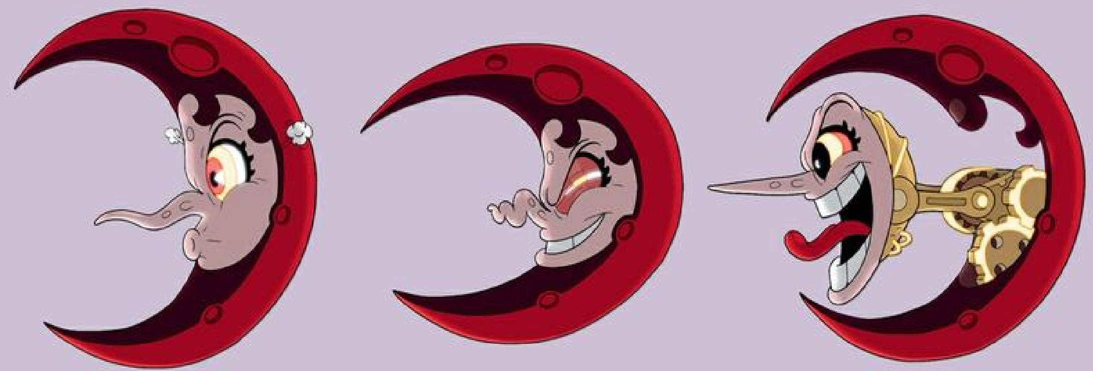

IDLE
MERGING
THIRD EYE FLOATS TO OTHER SIDE OF SCREEN, SHOOT LASERS?

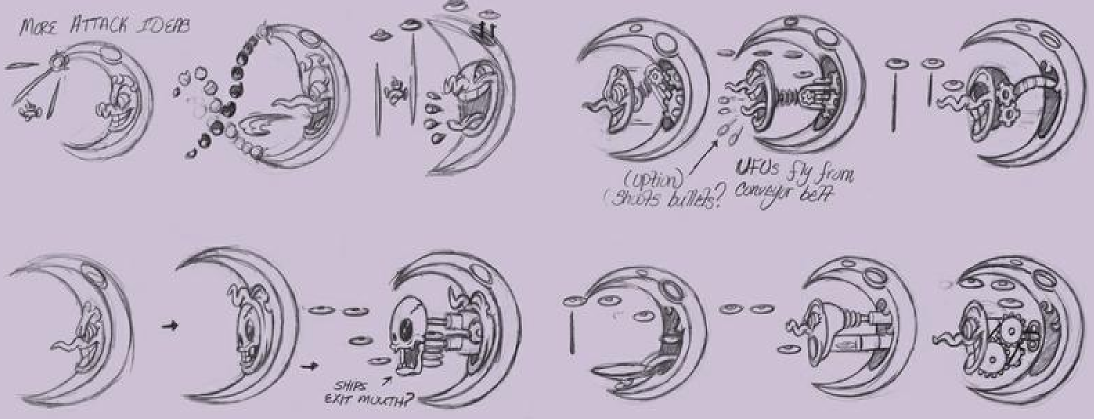
A look at pencil concepts alongside finished art for Hilda's constellation attacks. As with many boss attacks, the patterns for these were design-locked before we began art exploration, allowing us to consider visuals that would best fit the patterns we wanted to use. To the left, a series of unused floating heads we dabbled with as possibilities for a "Gemini Twins" attack.

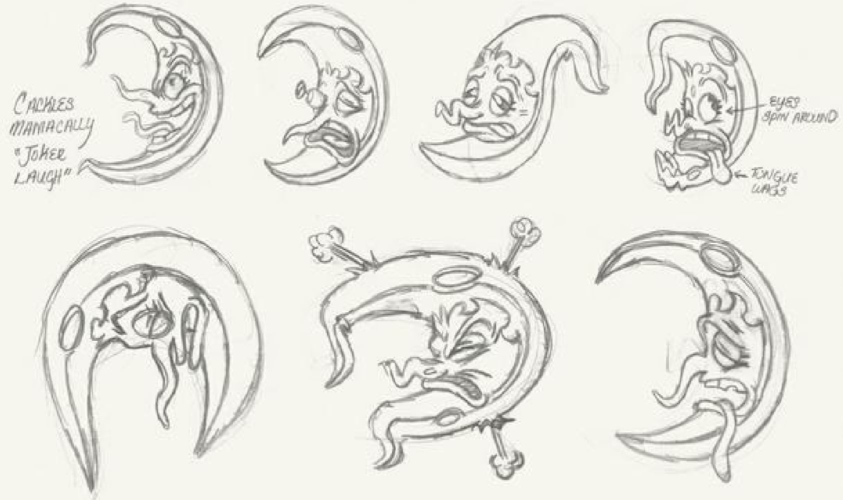


Hilda Berg's final phase transformation, where she flails her arms wildly in anger before spinning into a ball and emerging as a massive retro-futuristic moon, was one of the more ambitious moments in the game to bring to life. Everything we did on *Cuphead* was a group effort across disciplines, but this morph—and the ensuing fight—was particularly complex. With a celestially themed fight that took place in the sky, though, we knew we wanted things to culminate with a battle against a huge heavenly body of some sort, and to this day, it brings us a lot of joy to see this moment resonate with fans.

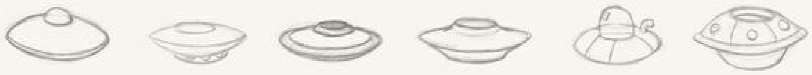
It would be hard to point to one film or cartoon in particular as a touchstone for this moment, as so many classics embraced the "moon with a face" concept. The idea goes all the way back to one of film's defining works, George Méliès's *A Trip to the Moon,* and we were thrilled to be able to carry on that tradition. Below, you can see thumbnail sketches from Joseph for what would become Hilda's final phase UFO attack, including a particularly macabre unused idea for a version of her moon transformation that had a skull for a face.

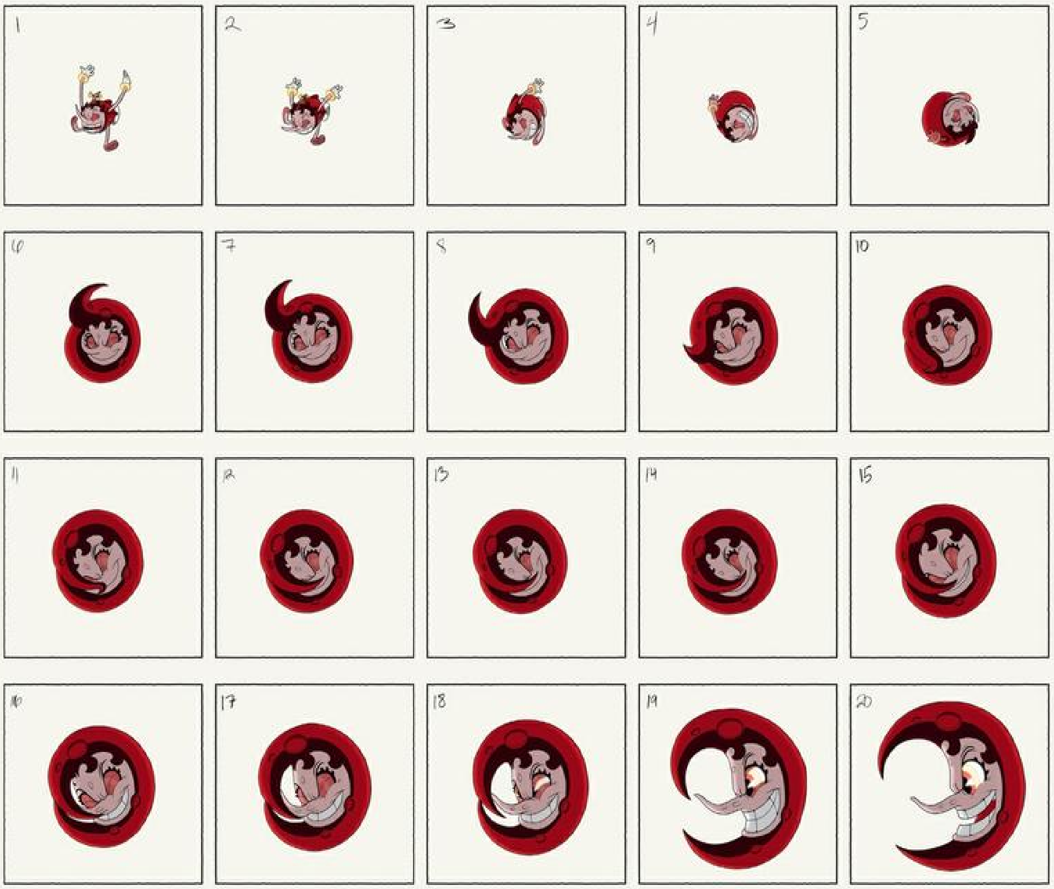





CACKLES MANIACALLY "JOKER LAUGH"
EYES SPIN AROUND
TONGUE WAGS

While you might think Hilda's emerging face and wild expression are the most complex parts of the twenty-frame animation below, the most deceptively difficult element to get right was the spinning of her cogs during the ensuing attack. With anything mechanical or interlocking, our animators had to work extra fastidiously to ensure the number of finicky moving parts remained consistent from frame to frame!

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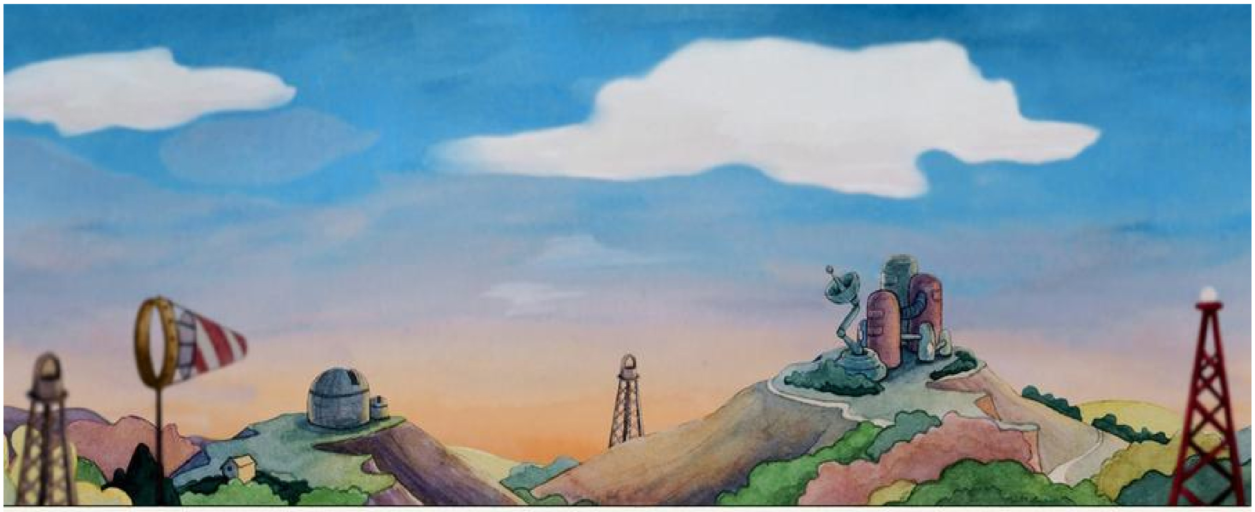
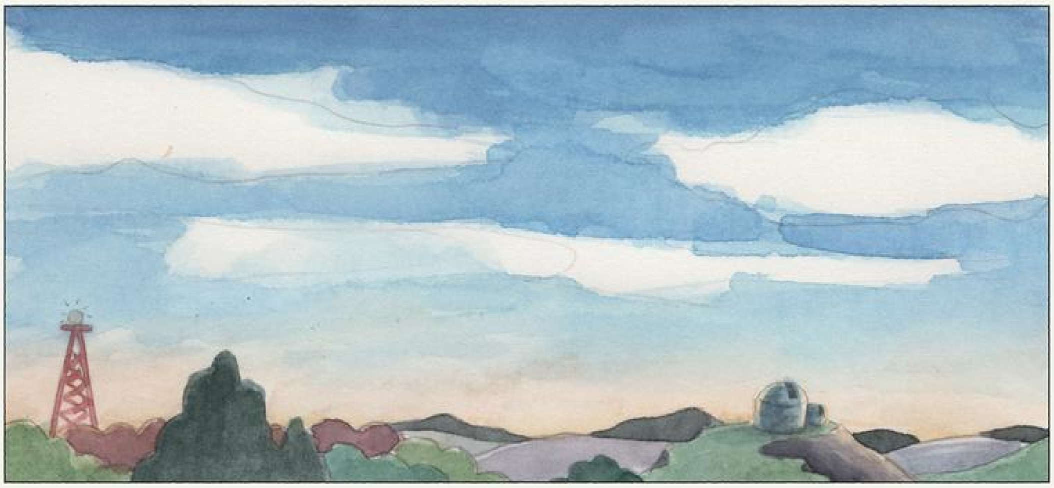


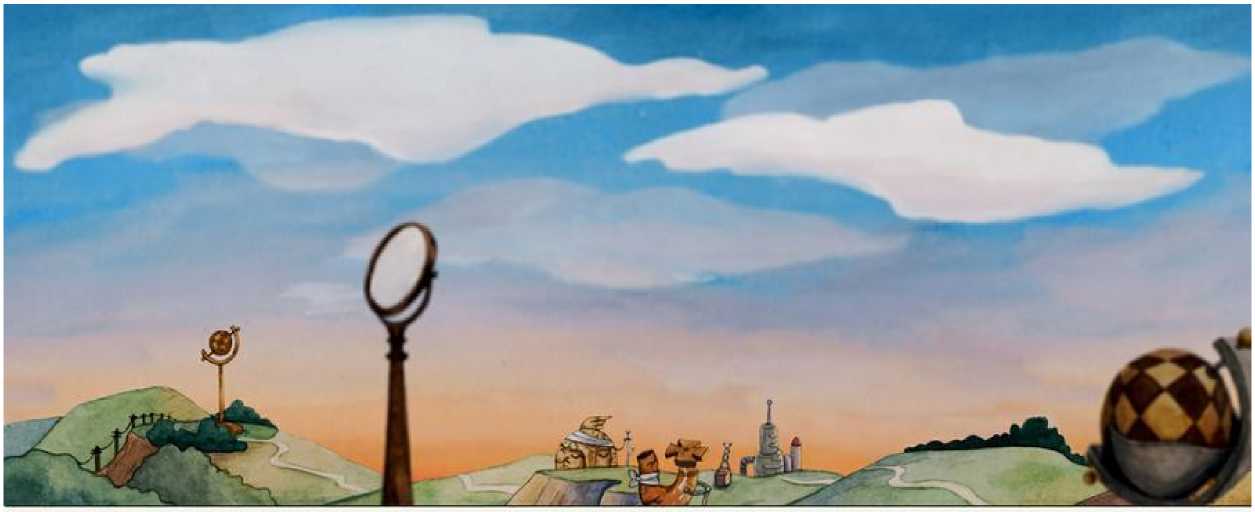


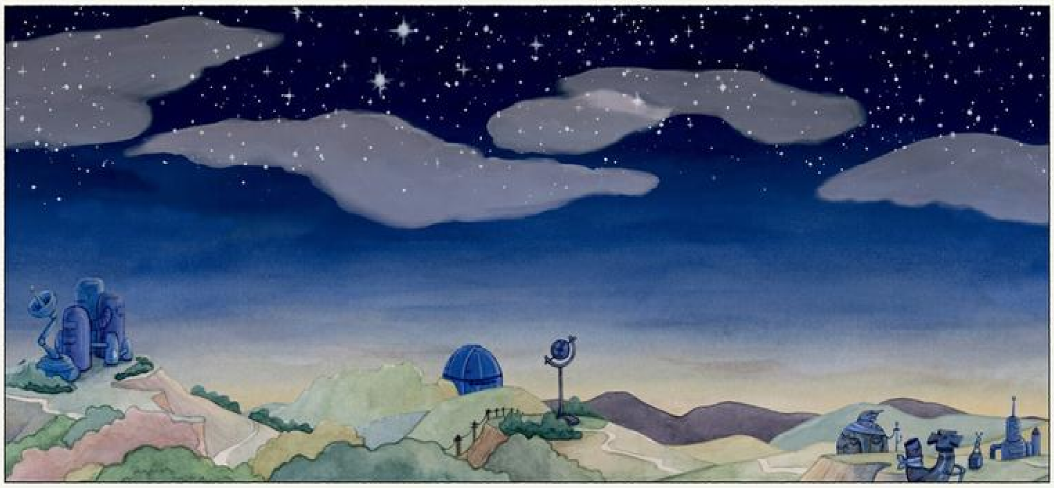
Threatenin' Zeppelin Background

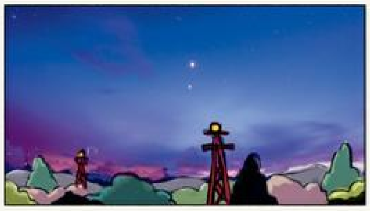
IF YOU'VE PLAYED ***CUPHEAD*** before and feel like the background above shares some similarities with the mechanical and technological tone of the fight against Dr. Kahl's Robot in Isle Three, that's no accident. This background was originally going to be used for that fight, which—during the game's early development—was conceptualized as an Isle One boss. However, after some tuning and design changes, it became apparent that Hilda's difficulty level was much more suitable as the game's introductory shoot 'em up battle.

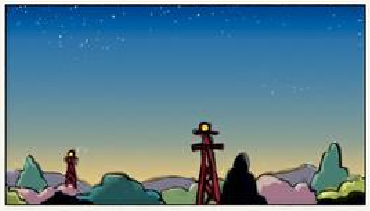
Luckily, background painter Caitlin was able to adjust her concepts to incorporate the rolling green hills that allow this scene to feel at home on Isle One, while retaining just enough machinery to complement Hilda Berg's third-phase steampunk influences. And serendipitously, the transition from day to night was something we had planned to use even when this background was considered for Dr. Kahl's Robot, so that's something we retained for Hilda.

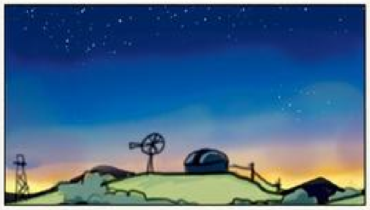
Notable video game references in this background include nods to *Fantasy Zone* and *Sonic the Hedgehog*.

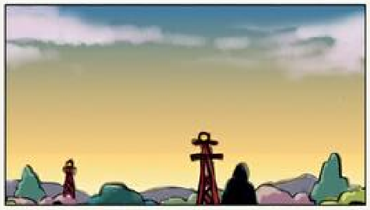






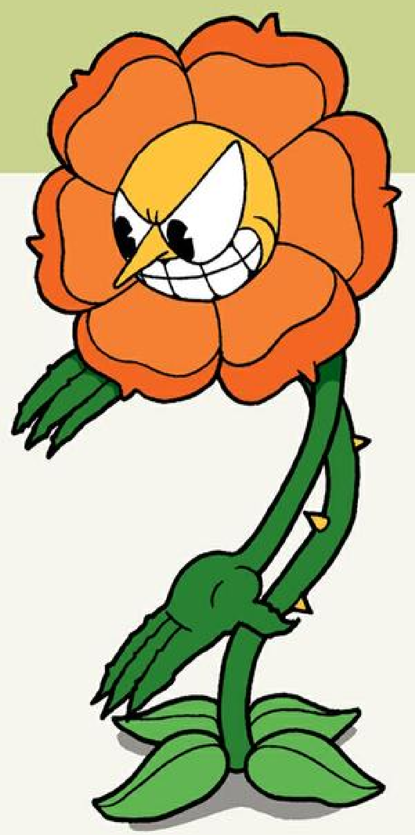






A look at a series of color roughs created by background painter Caitlin to present different options for this fight's scenery at night and in low light. Ultimately, the bottom two felt most appropriate for the rest of the color grading we'd already chosen, and encouraged us to go with a fade from dusk to night during the course of the battle. Including blue-toned buildings inspired by Mega Man*!*

Cagney Carnation
in
"FLORAL FURY"



SINCE *CUPHEAD*'S RELEASE, we continue to be humbled by the reception to our little animated adventure. From kind letters to amazing fan art, we are constantly flattered by the talent and kindness of folks who've played the game, or watched it being played. One of the things we couldn't have expected is the way that screenshots of the characters and bosses have taken on a life of their own in jokes and GIFs passed around social media. And perhaps none more widely than the side-to-side shimmy dance of Cagney Carnation.

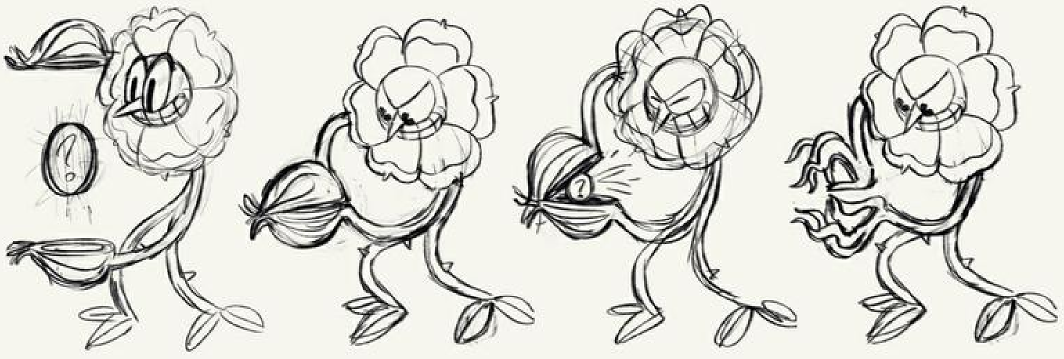
Our way of paying tribute to Fleischer Studios' defining and surreal 1930s classic *Swing You Sinners,* Cagney's dance was just one element of his character inspired by cartoons of the era.

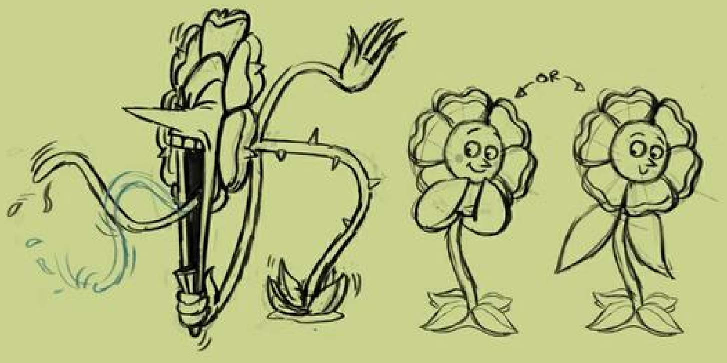
From the 1932 Disney Silly Symphony toon *Flowers and Trees* right on through the 30s (and beyond), anthropomorphic plants were such a mainstay of the classics. We knew right from the beginning of *Cuphead*'s development that we would want one as a signature baddie.

More than just a tribute to famous animated flora, though, Cagney—and many of the things you see during his battle—were very much our love letter to the most memorable plant-based enemies we fought in the games we played together growing up. Some examples include the first boss of *Aztec Adventure* on the Sega Master System and the vicious vines of *Ghostbusters* on the Sega Genesis.

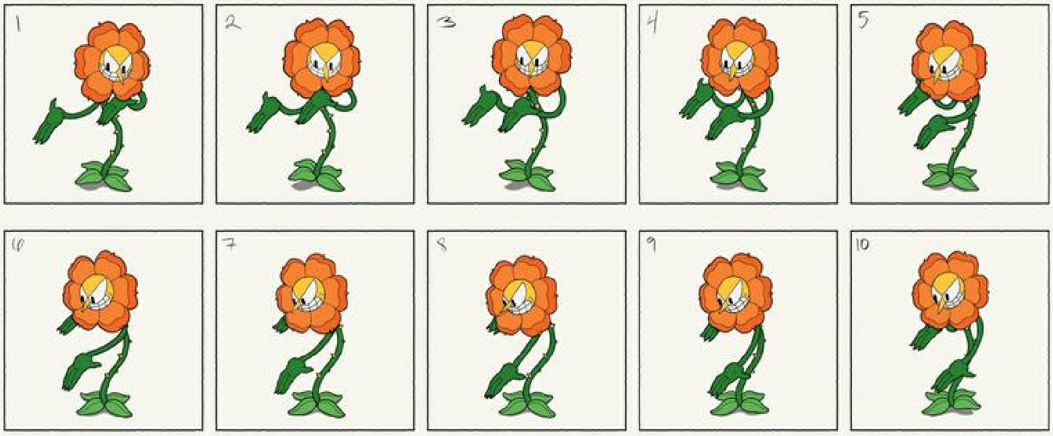
From a design perspective, the goal with Cagney was to create a boss whose "hit box," or area that you attack, remained out of reach unless you were positioned on platforms, or shooting diagonally, further allowing us to send a barrage of plant-based attacks your way.

And fun fact: Cagney's first name comes from famous 1930s film star James Cagney, who most definitely did a few notable dances in his day!





“Fools who attempt
to fight this, will leave
with allergic rhinitis!”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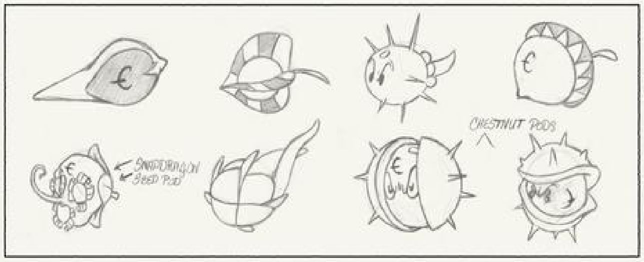
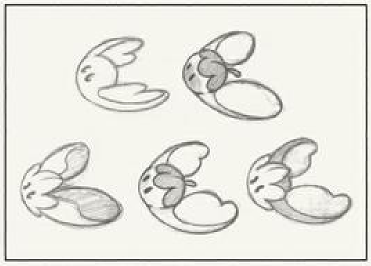
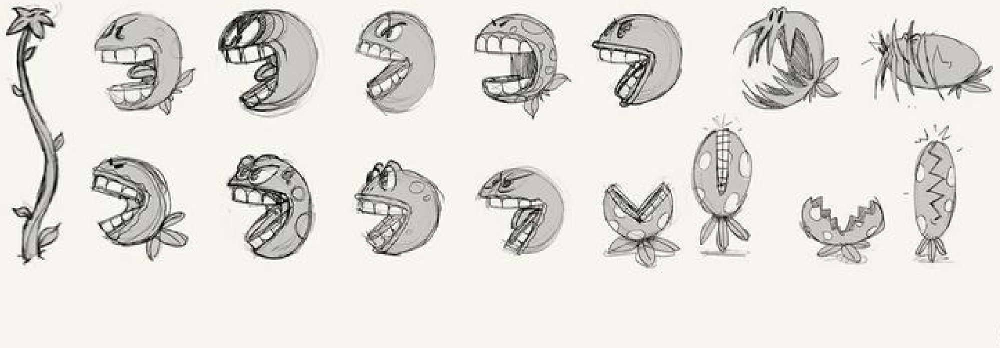
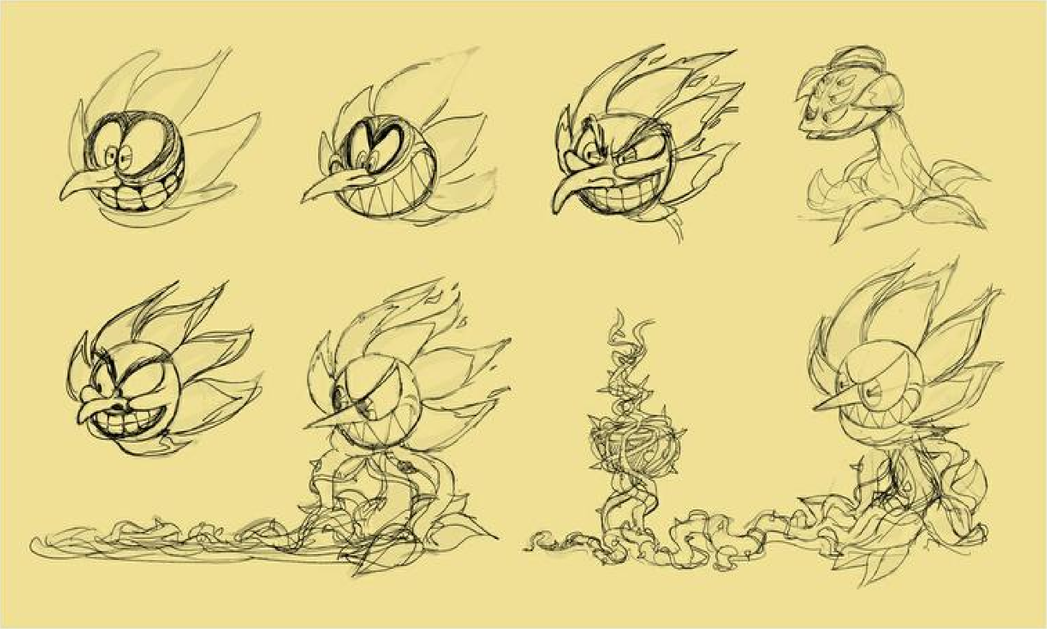
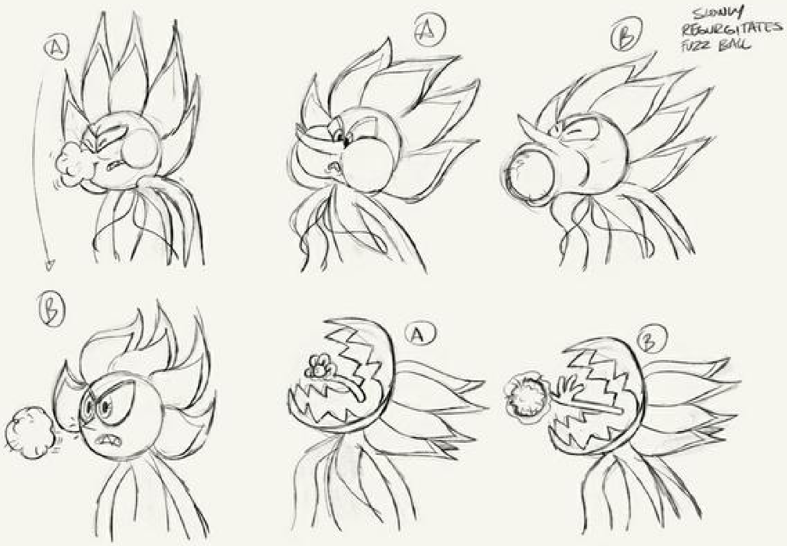

CHESTNUT PODS
SNAPDRAGON SEED POD

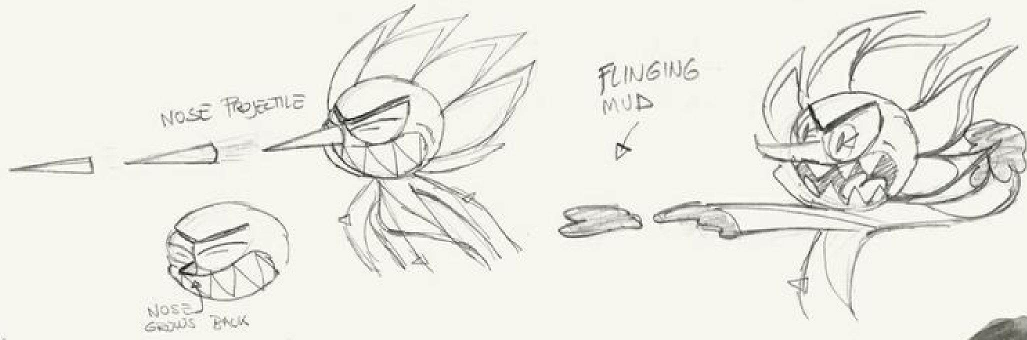


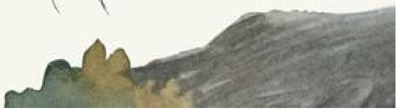


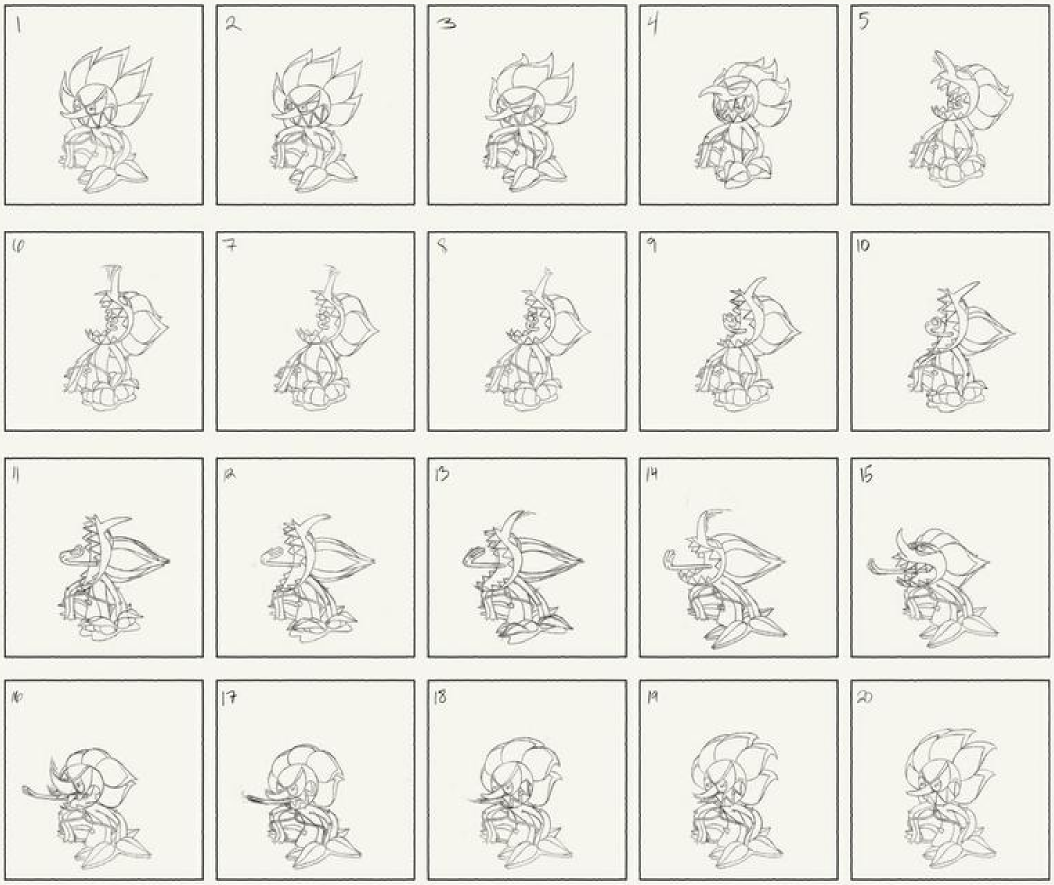


Cagney is one of the characters originally animated by Chad himself, including his signature dance, his character idle, and his face attack. After Cuphead *grew in scope, and Chad shifted to art director, animator Hanna Abi-Hanna took over core animation duties on Cagney. These are his explorations for the fight's final phase* (above)*, and the spit attack therein* (right)*.*


A
A
B
SLOWLY REGURGITATES FUZZ BALL
B
A
B


NOSE PROJECTILE
NOSE GROWS BACK
FLINGING MUD

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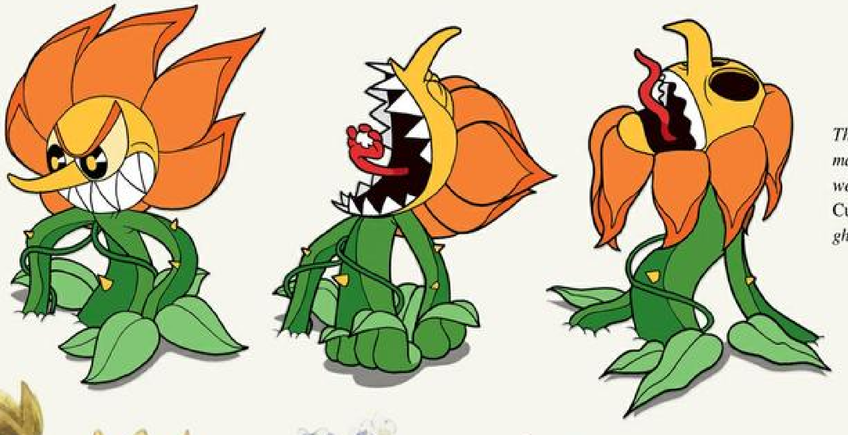
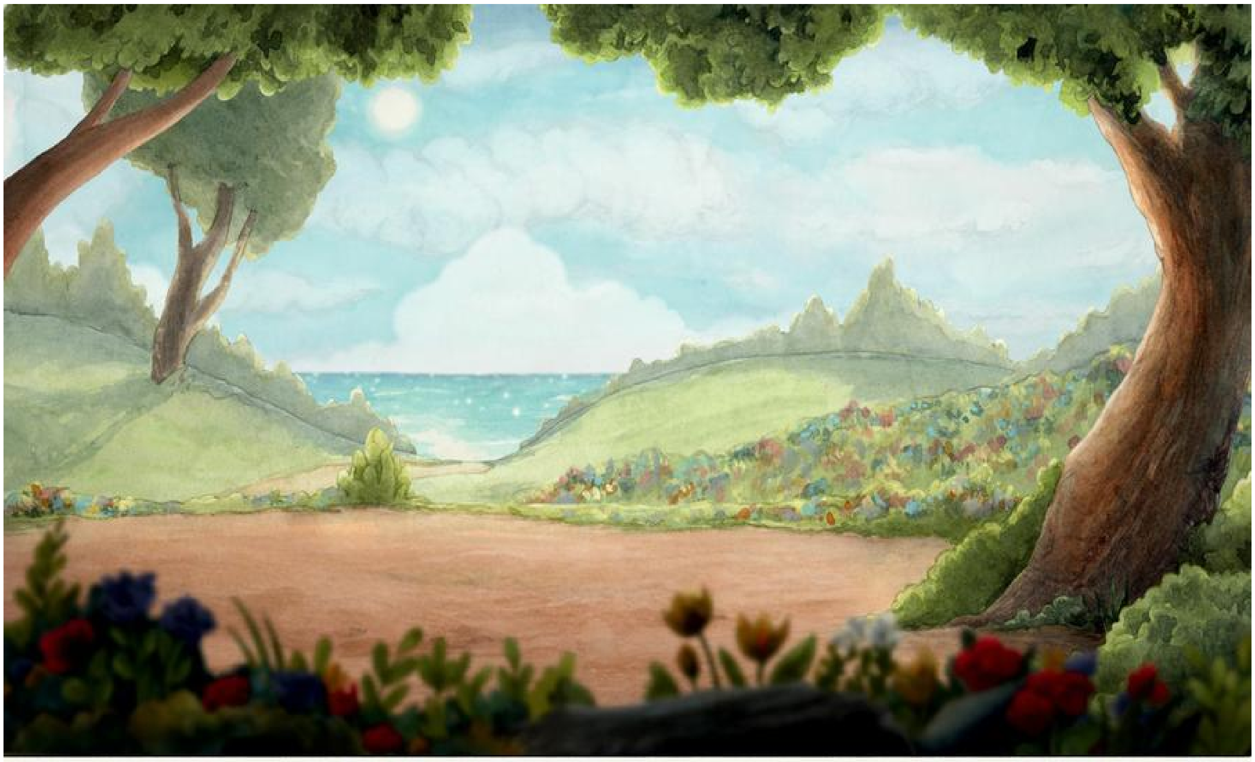
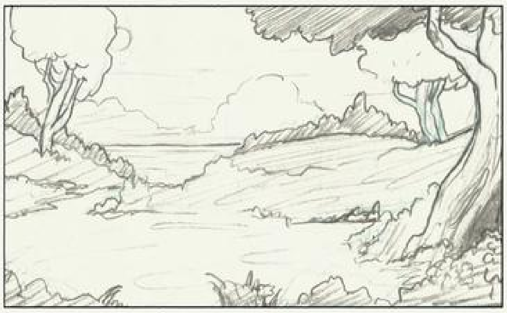
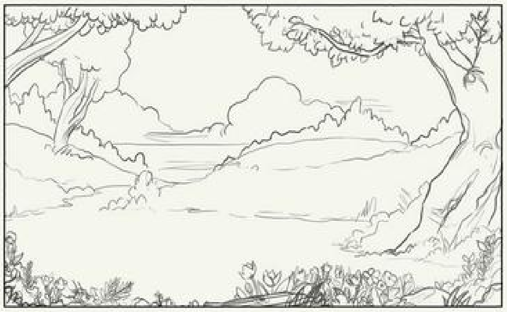


The use of hollow eyes was a mainstay in 1930s animation, and we come back to it throughout Cuphead *for undead characters, ghosts, and boss deaths!*





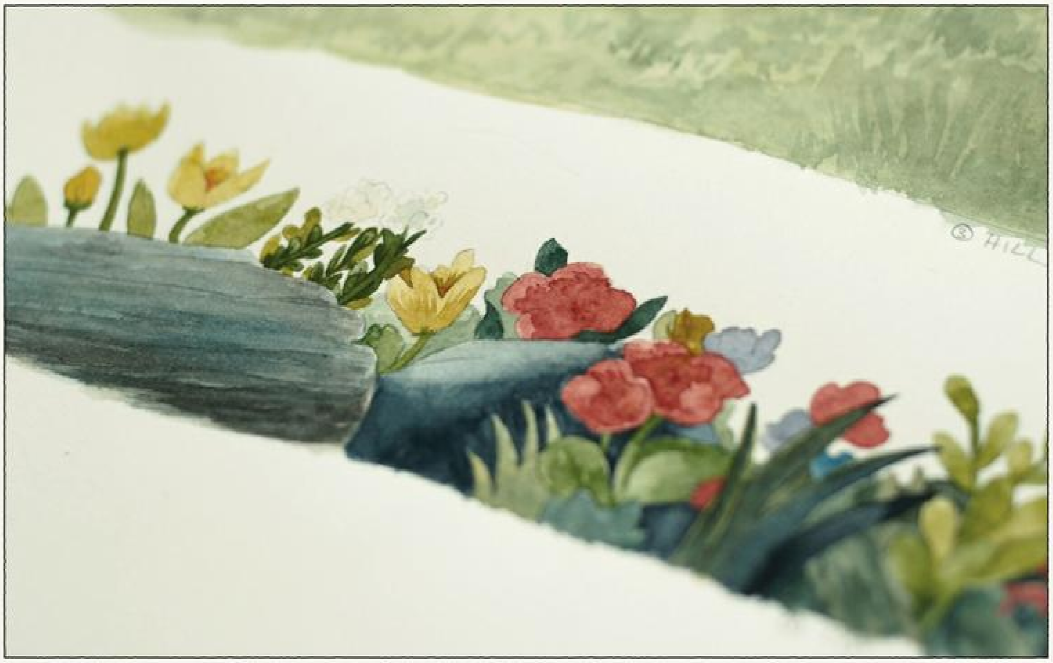


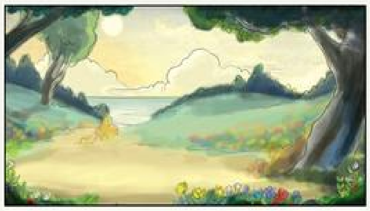
Floral Fury Background

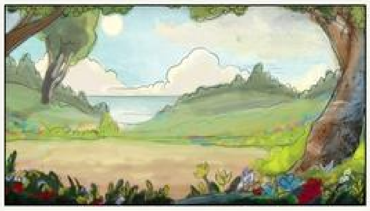
DESPITE (OR PERHAPS BECAUSE OF!) the freneticism of Floral Fury, we deliberately wanted Cagney's fight background to feel serene and peaceful, as if it was taking place in the kind of vibrant forest clearing where an anthropomorphic carnation might live. This was an idea we had in our minds when designing *Cuphead* —that these debtors you were fighting on behalf of The Devil might not, in fact, be as fearsome if they hadn't gotten mixed up with all that soul contract business.

Visual reference points for a scene like this included Disney Silly Symphony toons like *Three Little Pigs* and *The Wise Little Hen*, as well as classic films like *Snow White and the Seven Dwarfs*. Sometimes, the simplest or seemingly least complex backgrounds can be deceptively difficult. In the absence of flashy or bombastic imagery, each element has to work together just right to achieve the desired effect.

With the final background in hand from painter Caitlin, we added one finishing touch: animated sparkles on the water in the distance, to bring that extra bit of life to the scene.







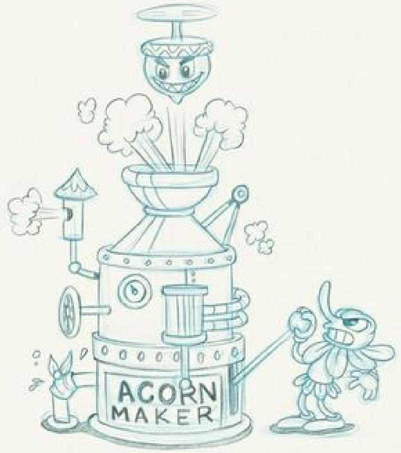
The average size of a painted background in the 1930s was roughly 11" x 15", which is the standard size we used as well. In place of smooth illustration board from the era, Caitlin worked on smooth watercolor paper, drawing influence from animation of the era for even small details like the shape and color of flowers.

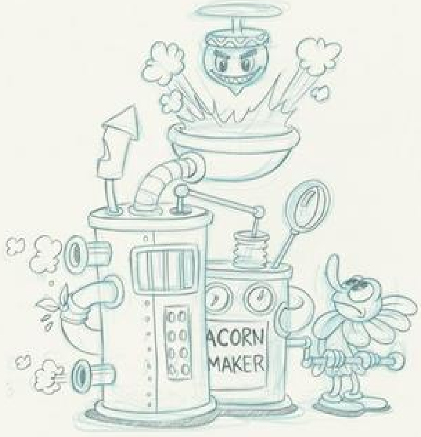
Run & Gun

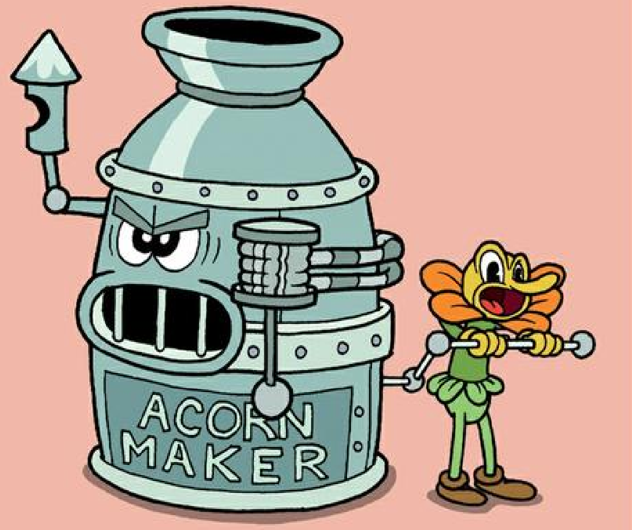
FOREST FOLLIES

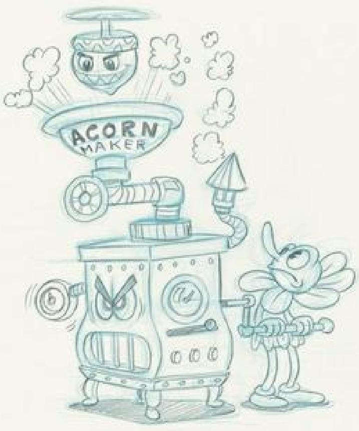
THE INTRODUCTION TO RUN-AND-GUN stages can be an eye-opening experience, both for the player and for us developing them. The collection of grassy knolls, quiet trees, and twisting vines became a battlefield for us to figure out how we were going carve our own path for platforming and shooting that would pay proper homage to run-and-gun classics like *Contra III* and *Gunstar Heroes* while fully exploiting the range of techniques that Cuphead has.

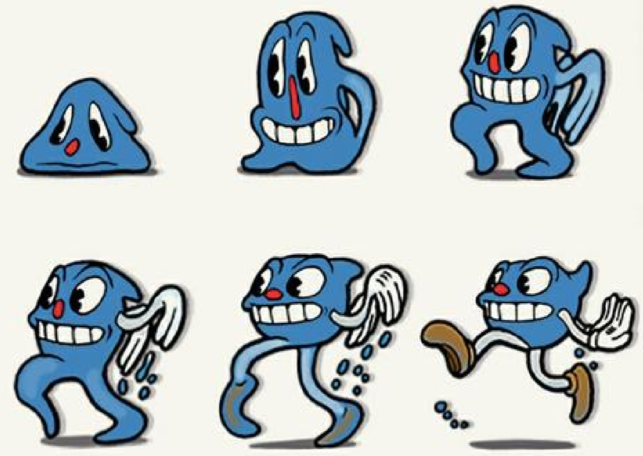
Forest Follies was the testing ground. We used the rolling hills to refine our camera system to properly frame the action for two players moving around frantically. We used the numerous trees to test how many layers of parallax and how many individual background elements we would need to properly convey an infinitely sprawling forest. We used tree branches and mushroom caps and forest thickets to see how far we could go with painted elements while still ensuring players were never asking themselves, "can I jump on this?" We tested edges and jump heights and enemy spawns and reactions. By the time we had finished, we had arranged and rearranged this level so many times we had dozens of versions of it.

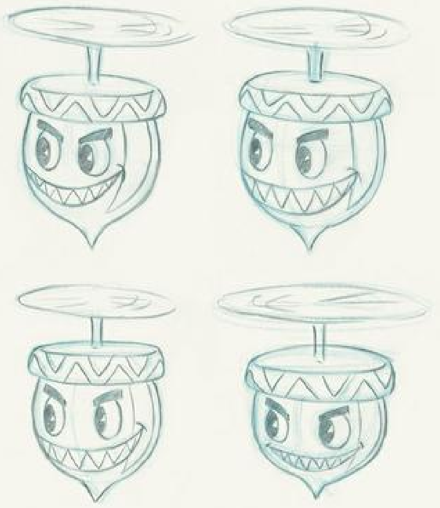


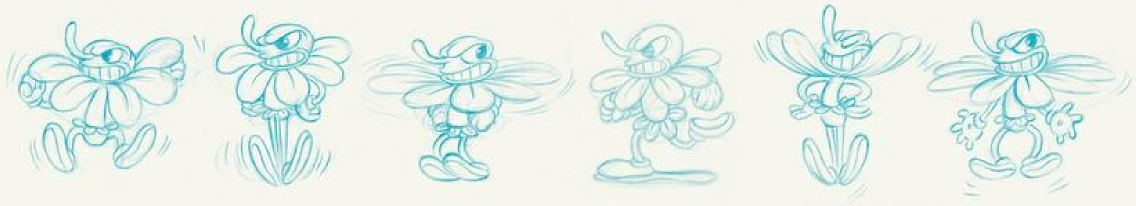


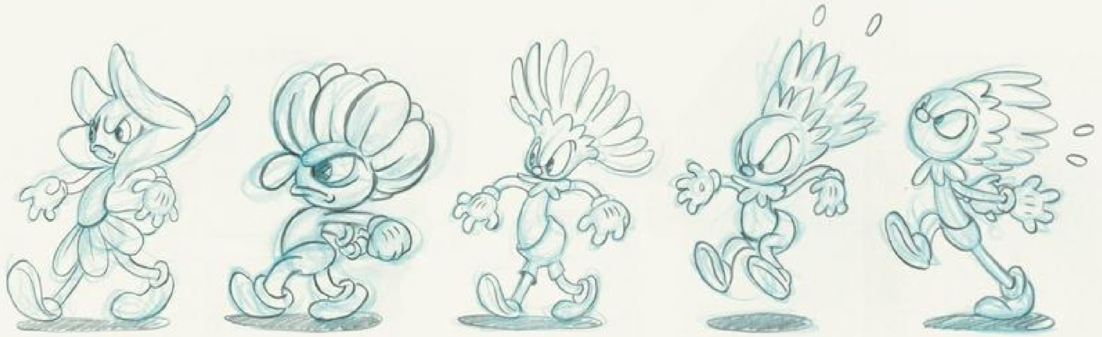


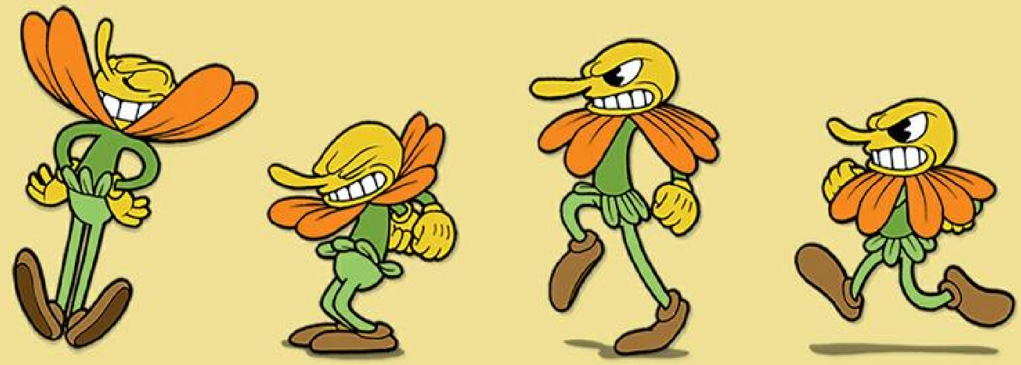


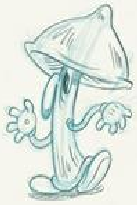
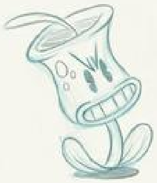
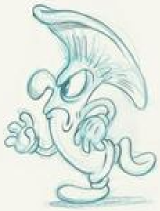
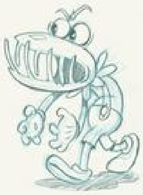
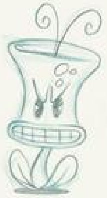
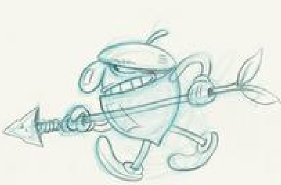
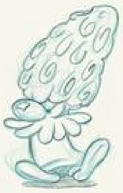
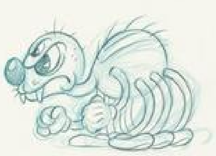
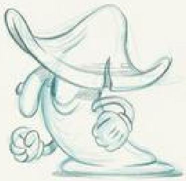
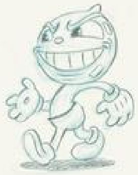
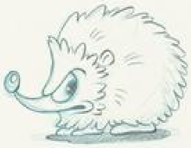
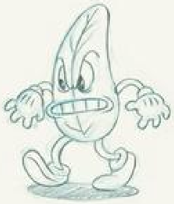
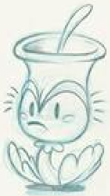
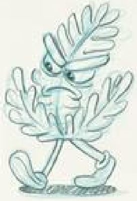
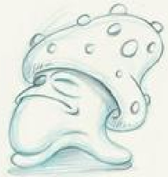
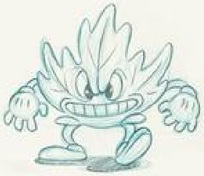
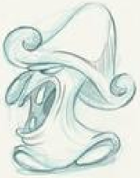
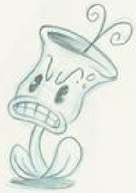
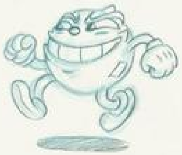
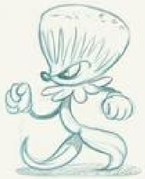
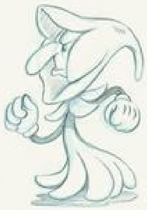
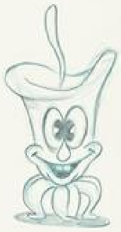
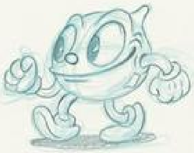
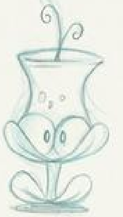




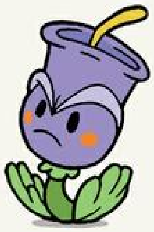
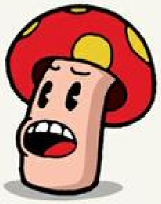
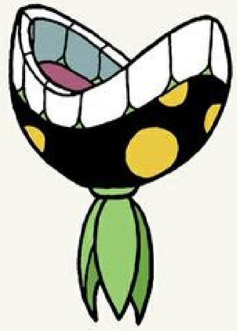


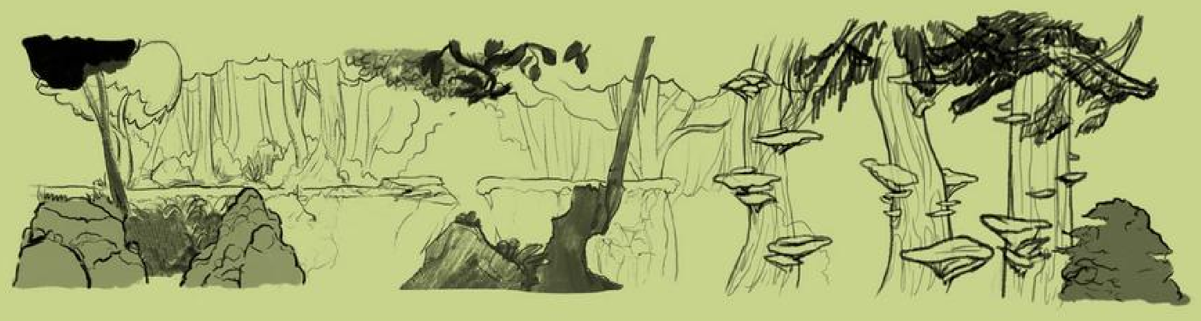




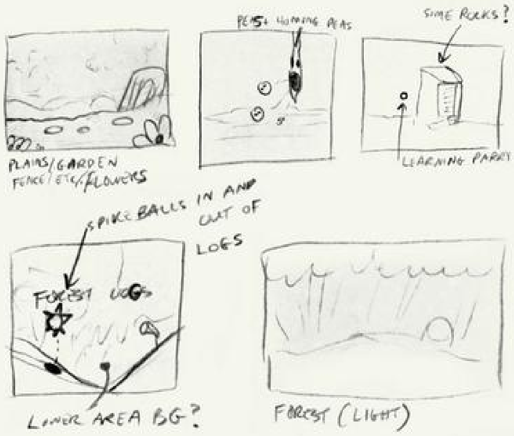
Through the concept phase, animator Tina Nawrocki explored extensions of the boss characters of the area. We would always try to tie the denizens of the levels to the bosses of the Isle to make the world feel more connected and plausible. The final enemies chosen resemble comrades of Cagney Carnation.

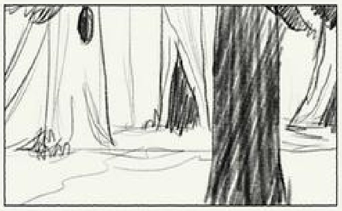
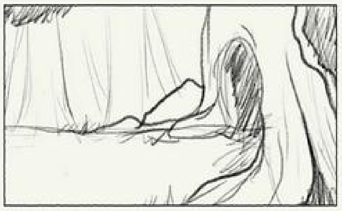
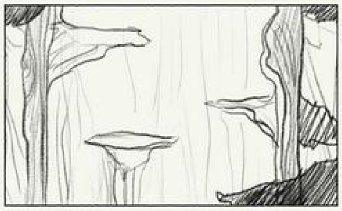
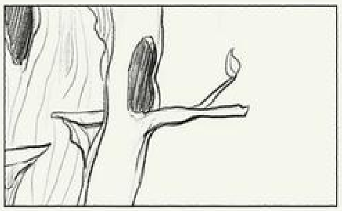
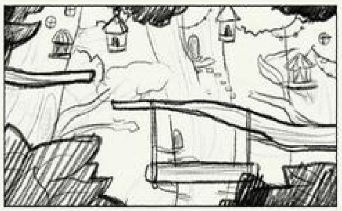
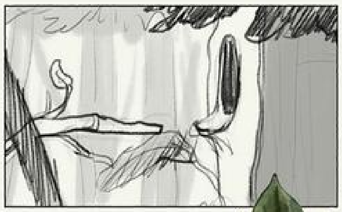
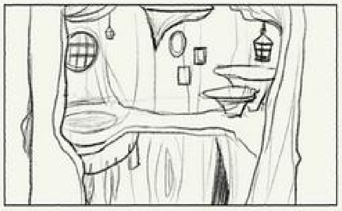
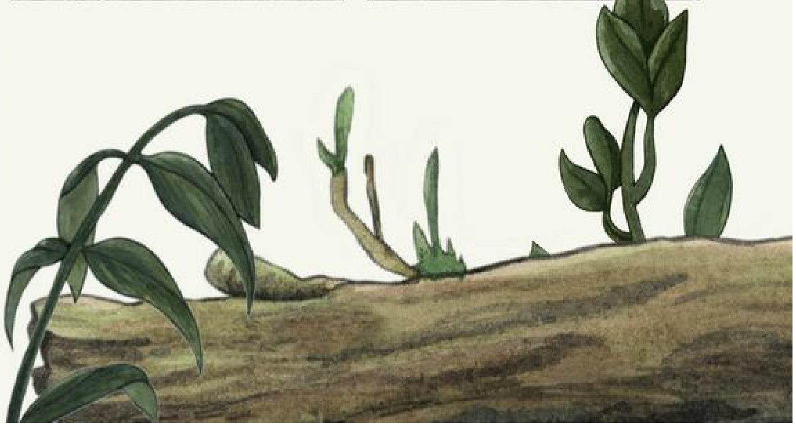




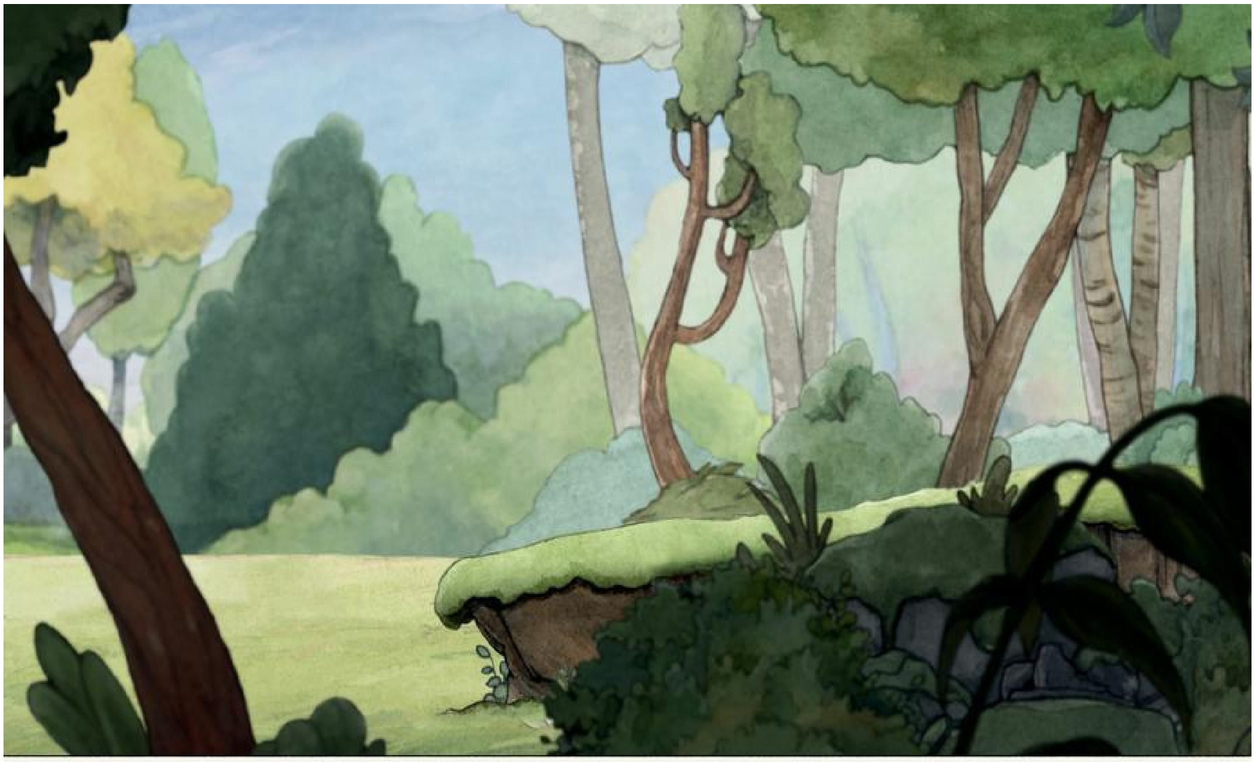


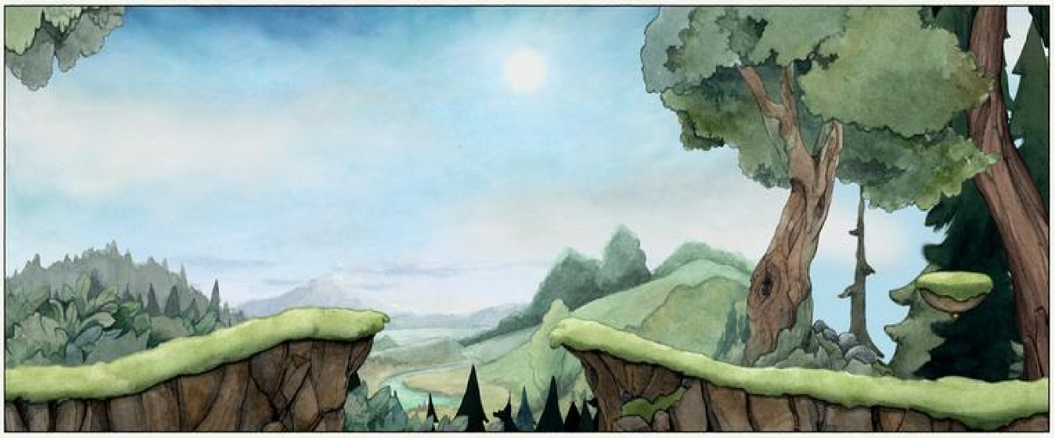
Forest Follies Background

THE WAY WE BUILT FOREST FOLLIES was a learning process that would change the way we would build every other level going forward. Initially, art director Chad Moldenhauer would work with background painter Caitlin Russell to create individual ground and tree log chunks that would then be mixed and matched together by lead designer Jared Moldenhauer to create levels. The artists would come up with a visual progression for the stages on their own and then create individual parts for the designer to implement in a fun way. While this process was quick for the artists, it led to unused art assets and less distinct level design. Through these trials, we eventually came up with a designer-led collaboration with the art team to flesh out levels holistically, though these original component level elements can still be seen in Forest Follies.


PEAS + HOMING PEAS
SOME ROCKS?
PLAINS/GARDEN
FENCE/ETC/FLOWERS
LEARNING PARRY
SPIKE BALLS IN AND OUT OF LOGS
FOREST LOGS
LOWER AREA BG?
FOREST (LIGHT)

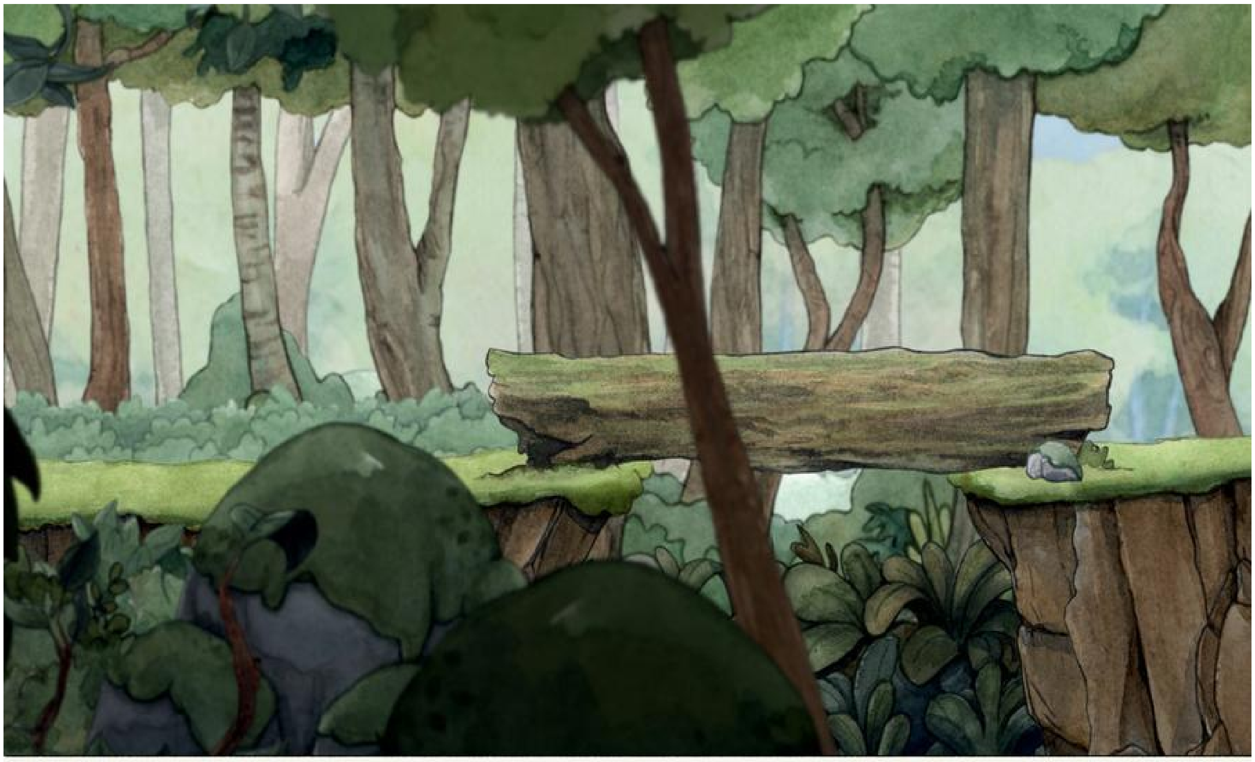









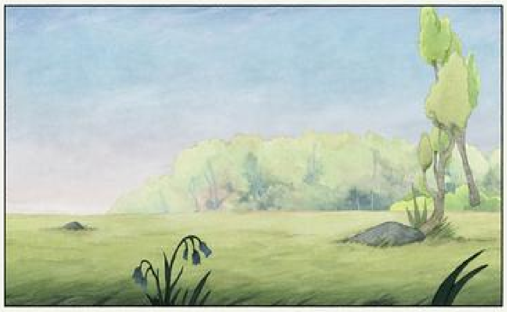


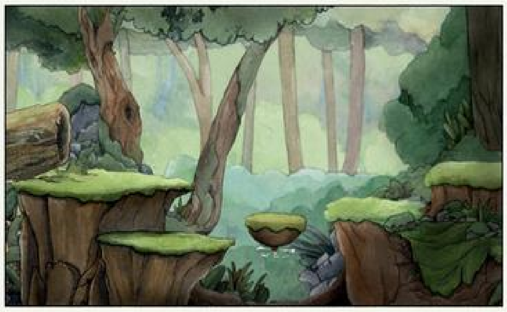


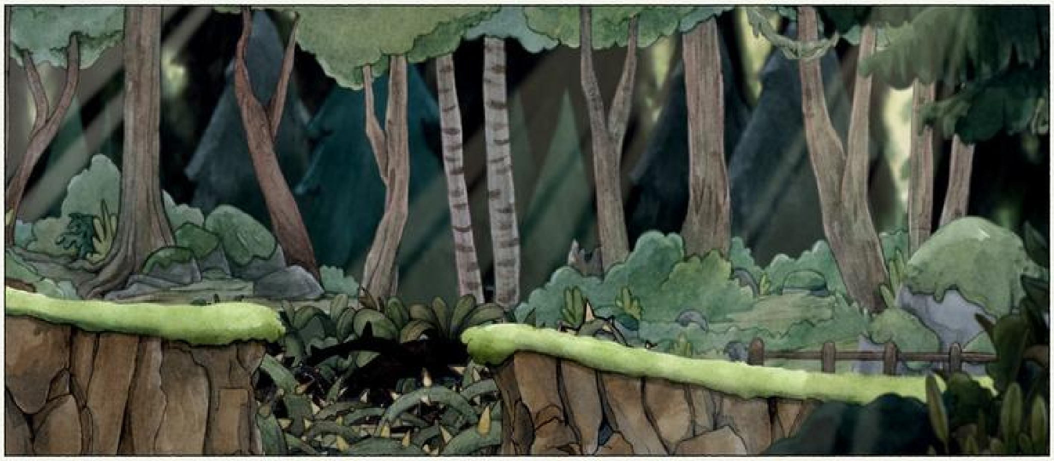
For each run-and-gun level, we strove to create a visual progression for each background to give the player a sense that they were traveling through a space, rather than just seeing repeated elements over and over. Forest Follies was our prototyping level, so we went with a simple lighting progression, from a clear calm day, to a green tinged forest, to a darkened ominous thicket with spiny vines crawling up from the underbrush. Background painter Caitlin Russell was a fan of the Super Nintendo classic *Donkey Kong Country*, and she used that game's "visual descent into dusk over the course of a single stage" technique as an inspiration for this first outing.

Keeping the visual consistency of independent elements that could be combined anywhere in the level, no matter what the implied background lighting model might be, proved to be a challenge that influenced us in moving towards a more bespoke custom designed level workflow.







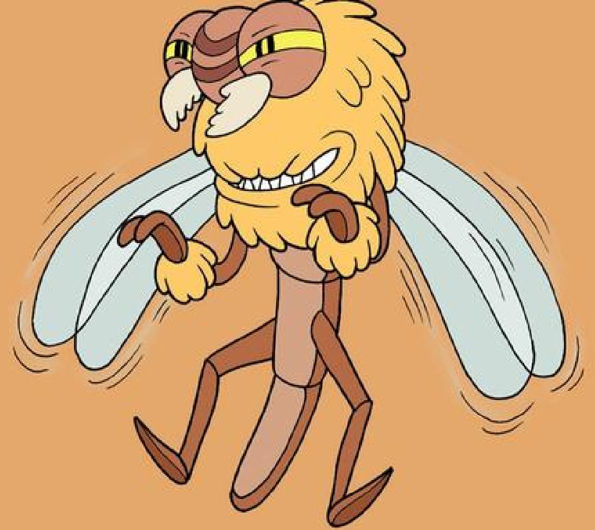


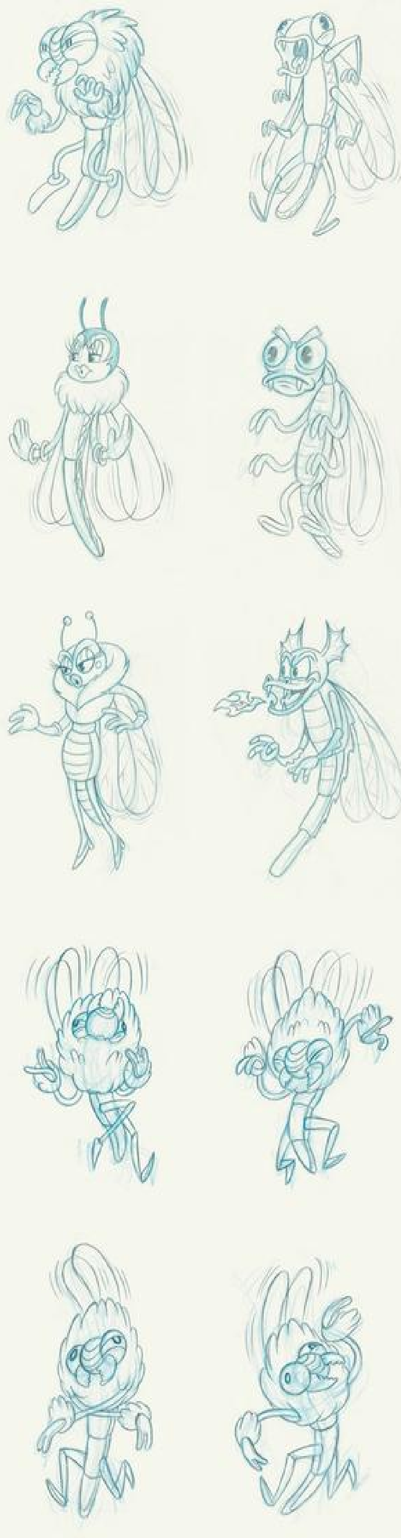
Run & Gun

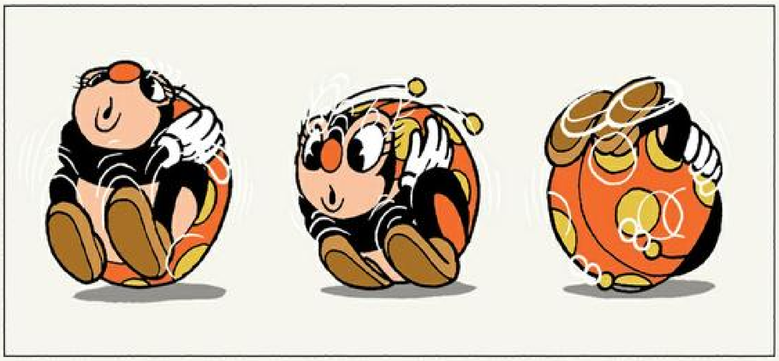
TREETOP TROUBLES

WHILE *CUPHEAD* IS CERTAINLY KNOWN for its difficulty, we've often said that our mandate during design was always "tough but fair." We did not want to create an experience that threw needlessly complex patterns at the player, making them rely on pure memorization to get past the challenges. By contrast, we always wanted *Cuphead*'s levels, boss or otherwise, to meaningfully test a player's ability to adapt and react on the fly through a core skill set. We would use a combination of set patterns, pseudo-randomized timing, and consistent layering of hazards to force a player to not memorize a level, but to react to what was happening at any given moment.

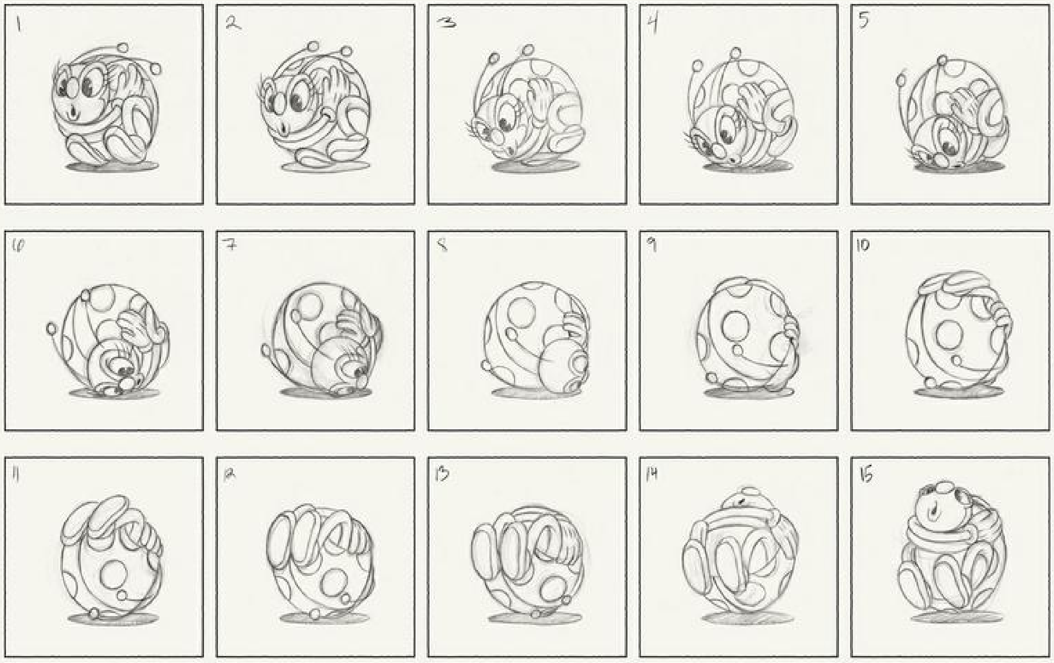
This is very much the case for Treetop Trouble, which we designed to reinforce your knowledge of some of the core concepts we wanted players to master as they made their way through Inkwell Isle One. The initial diagonal slope through the tree branch is meant to push you toward aiming diagonally as you move, using attacks outside the four cardinal directions to take down incoming enemies and stay safe. The second section—and first vertical moment in *Cuphead* to that point—was designed to test your jumping and dashing accuracy. Finally, the third section, deliberately sparser with enemy presence, is a lesson in patience and precision platforming.



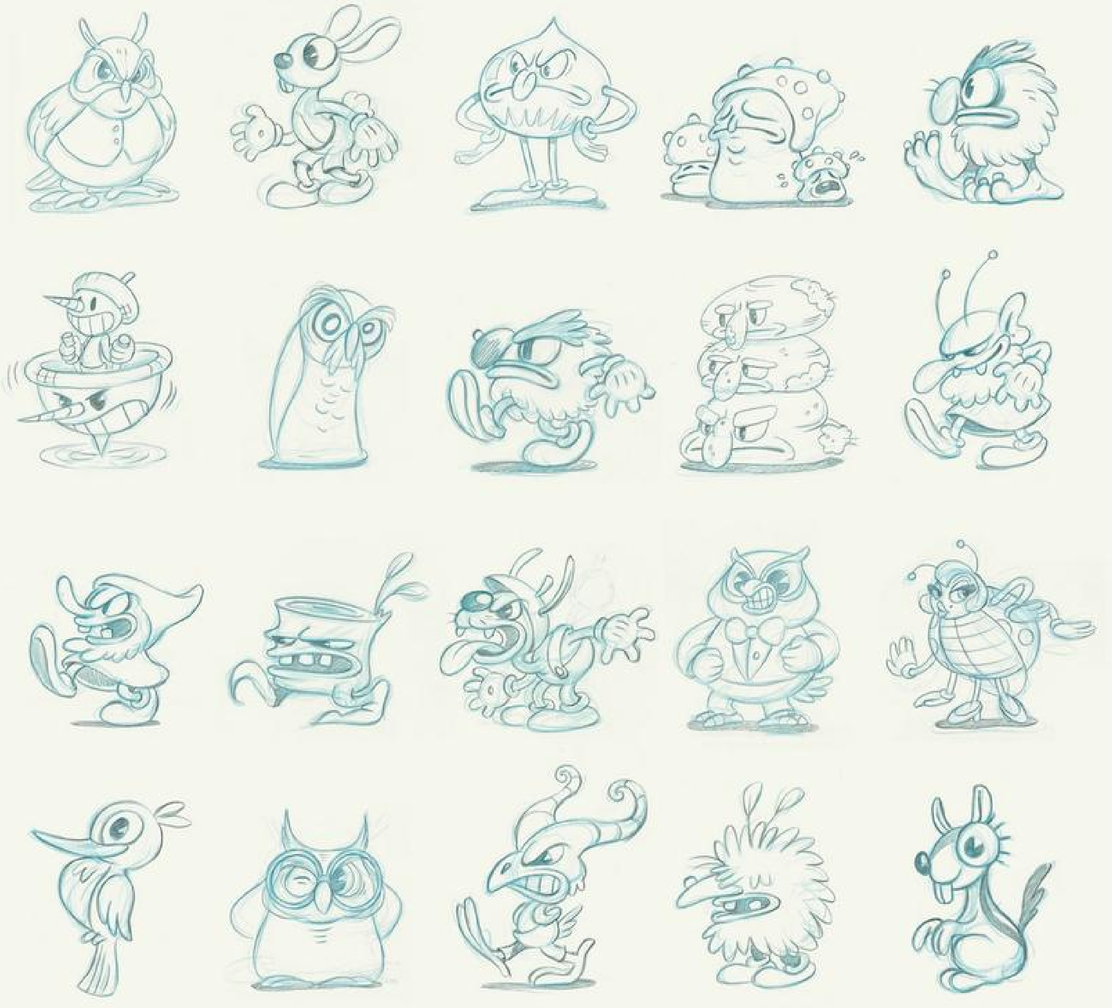


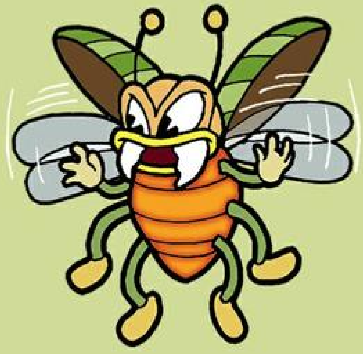


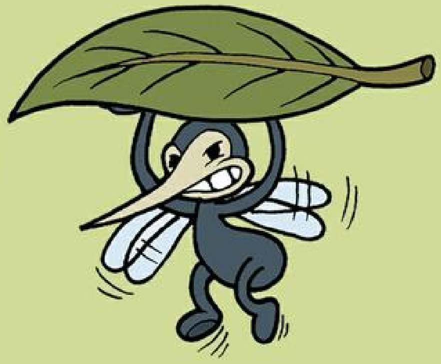
A fifteen-frame roll cycle (and associated full-color illustration) for the ladybugs that bounce toward the player during the first section of Treetop Trouble. Their patterns are a twist on the gameplay style of the bouncing turtle shells from the second level of Capcom's Ghouls 'n Ghosts.



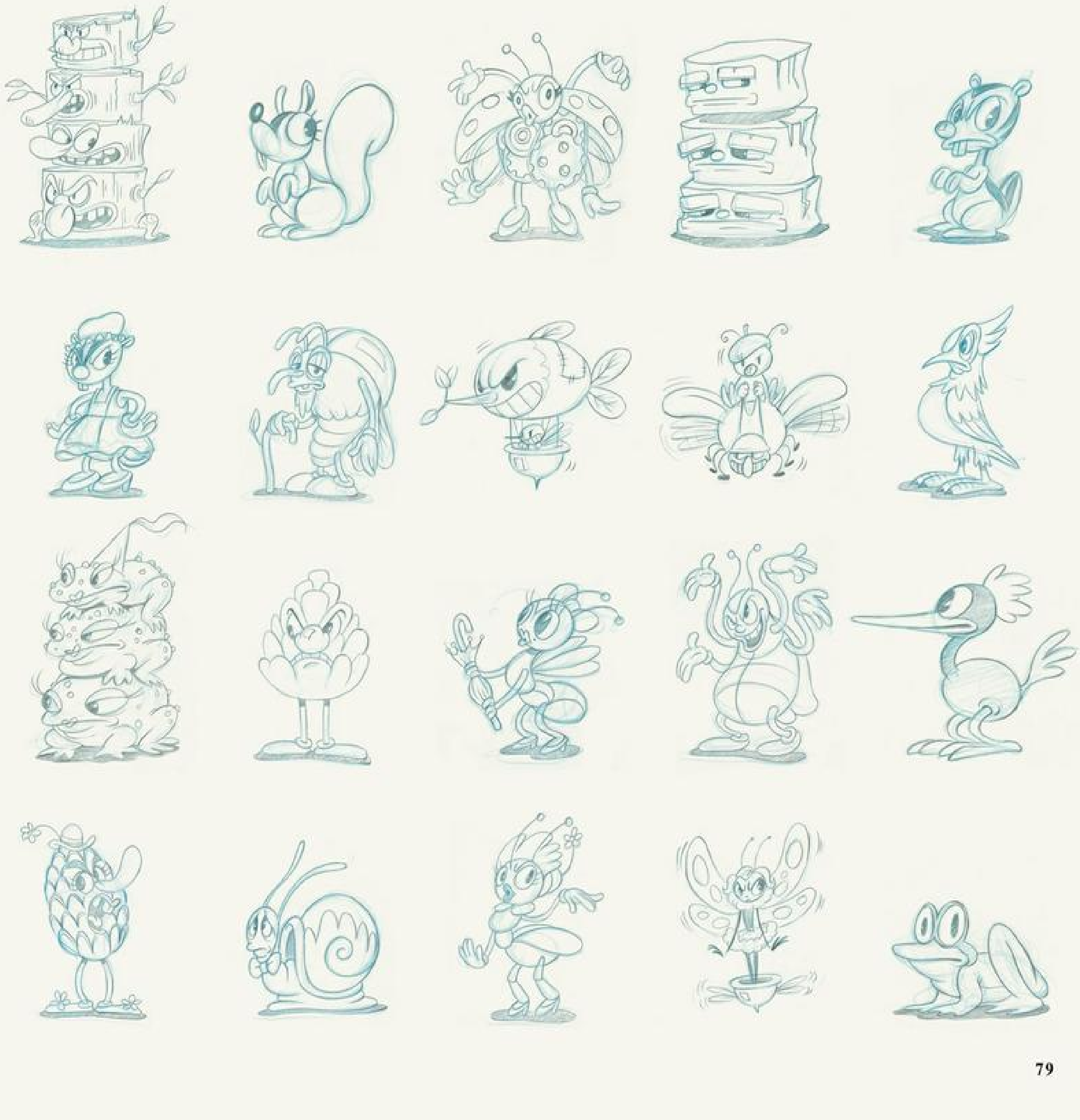
These Treetop Trouble enemy sketches by animator Tina Nawrocki are a good example of the wide net we would sometimes cast during our concept phase. Especially for our run-and-gun levels, where the visual identity could really be defined by the enemies you encountered, it was often worthwhile for us to work with animators to explore as many outside-the-box ideas as possible, before honing in on a clear theme. From bearded dwarfs to stuck-up pine cones, and even a Hilda Berg–inspired mosquito in a hot air balloon, seeing a diverse swath of character personalities could be a great springboard for deciding the overall tone we wanted for the level. This was sometimes one of the most challenging (but necessary) parts of the process when developing *Cuphead*: discovering what we didn't want in order to better bring into focus what we did. In this case, seeing concepts for a myriad of creative woodland creatures, fantastical and otherwise, helped solidify for us that we wanted to tie a more grounded insect theme into Treetop Trouble, linking it thematically to levels like Clip Joint Calamity, and creating a stronger sense of place for Inkwell Isle One. Of course, with 1930s cartoons as our primary inspiration, we still tried to leave lots of room to play with character anatomy, facial expressions, and proportions. We also wanted to pay homage to a classic 8-bit enemy category, the stacked enemy, and honed in on Tina's design for a quartet of tree stumps atop one another (right page, top row, left). We felt this fit well in a forest full of bugs, and hand animation afforded us the ability to go beyond this enemy's 8-bit underpinnings and give each layer of the stack a different expression.

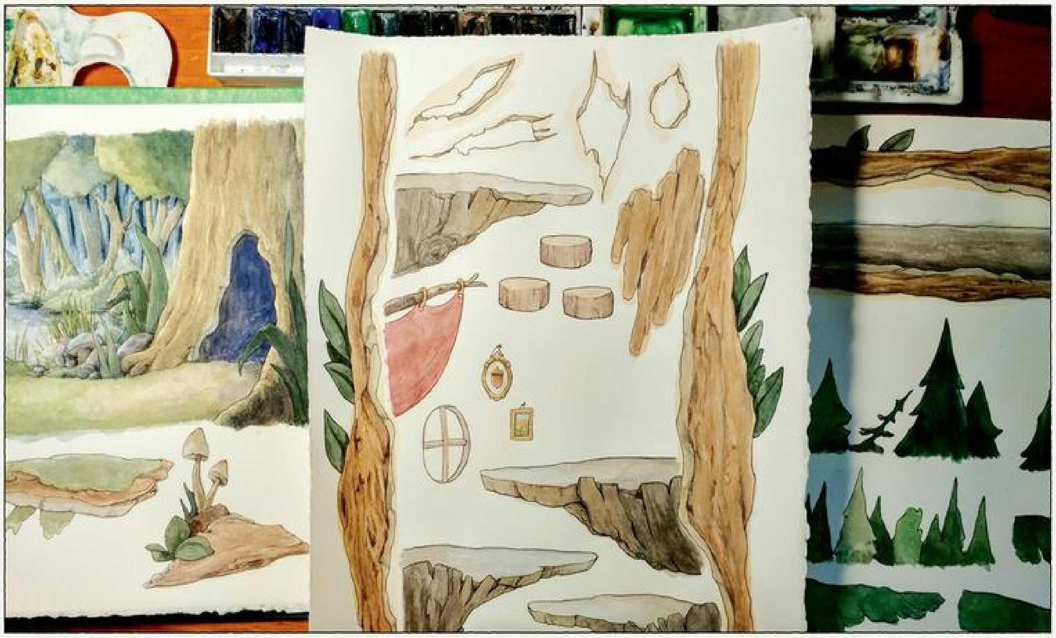


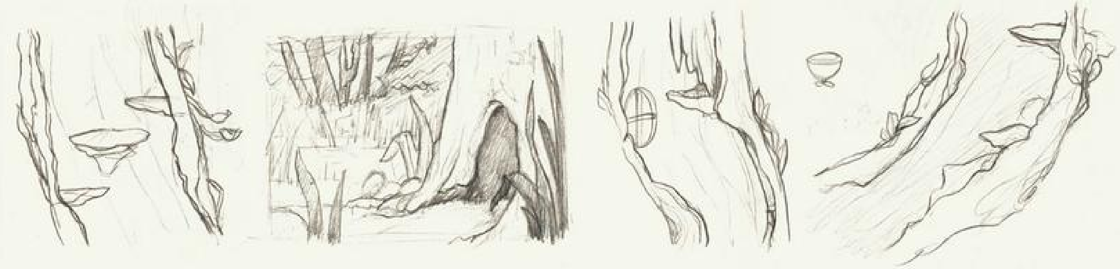




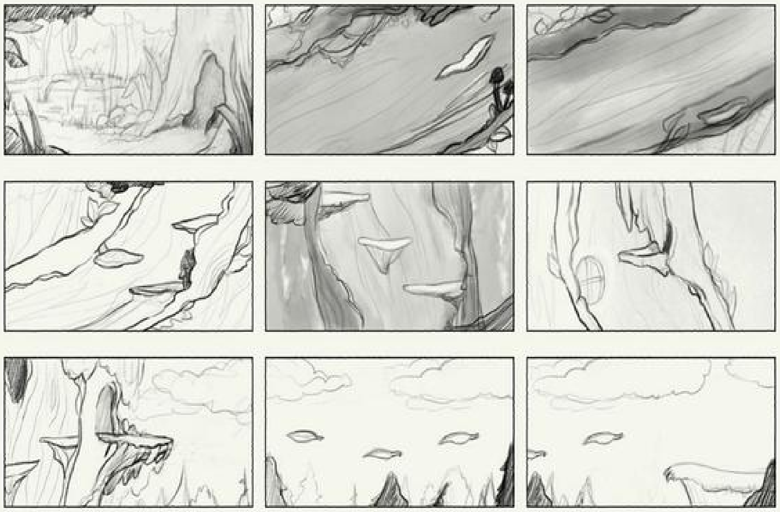
We thought it felt like an era-appropriate contrast to make the character holding Treetop Trouble's leaf platforms a mosquito, casting a typically annoying nuisance of a bug in the role of being a friendly helper. Meanwhile, the flying beetle is a nod to the monstrous beetle in the 1935 Disney short Mickey's Garden.

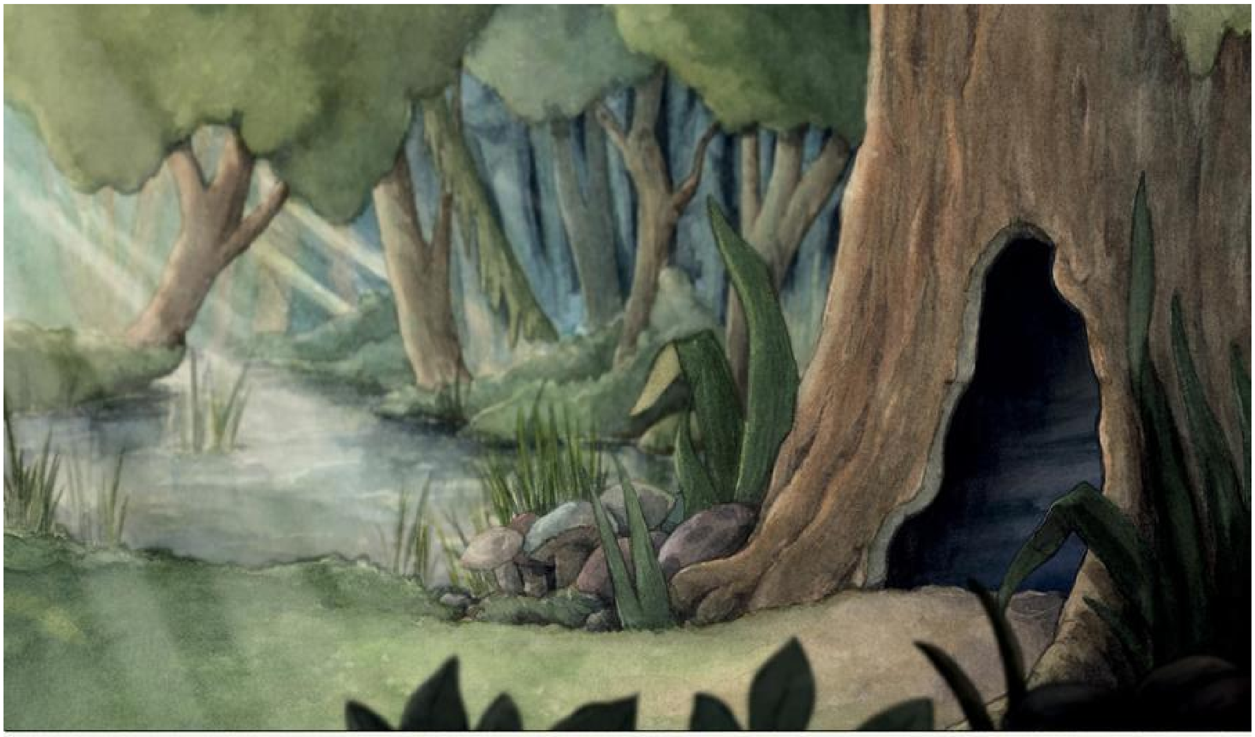


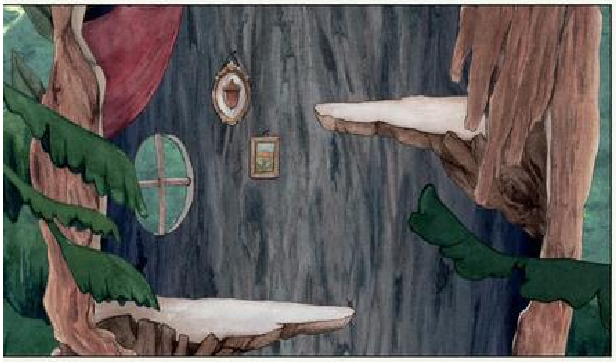


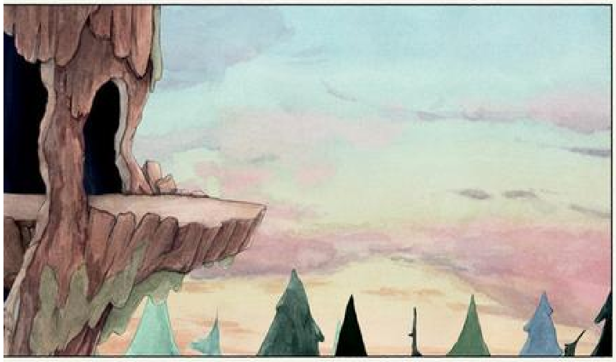


Pictured above, the final painted components of many of Treetop Trouble's individual elements, which we laid out to fit the level's design. To the right, a look at the early planning stages of a run-and-gun background, for which painter Caitlin would submit concept sketches of each screen.









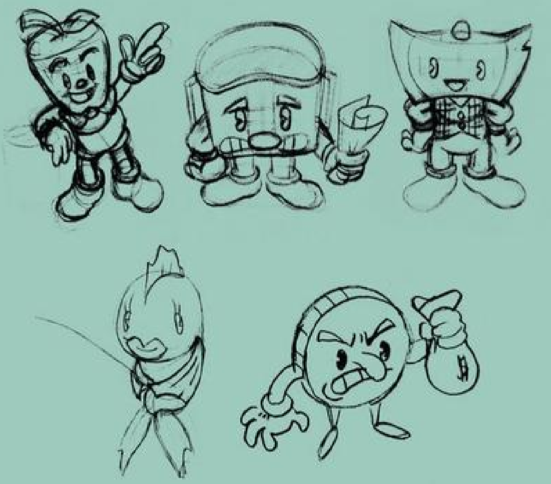
Treetop Trouble Background

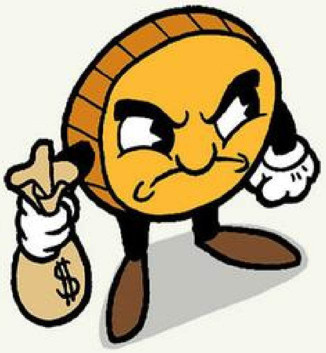
RATHER THAN PAYING HOMAGE to any specific animated short or film, we wanted the backgrounds for Treetop Trouble to be a warm and welcoming reminder of the many cozy forests of cartoons past. We hoped this level would bring to mind the homey feeling those cartoons did, of the spaces that birds, animals, and insects always seemed to craft for themselves inside a tree or a log. In fact, these backgrounds are arguably more of a nod to the art of 1930s background paintings as a whole, with its soft, subdued colors and warm, lush lighting—meant to keep the animated characters front and center. The marshland that travels offscreen left into the distance is another interlevel reference we wanted to include, loosely tying the space of Treetop Trouble to the characters of Ribby & Croaks. Of course, the vertical "treetop home" section of the level wasn't just aesthetically motivated. In a game that wears its affection for two-player *Contra* on its sleeve, we felt it only fair to have a vertical section that allowed you to pull the camera up to damage your too-slow friend!

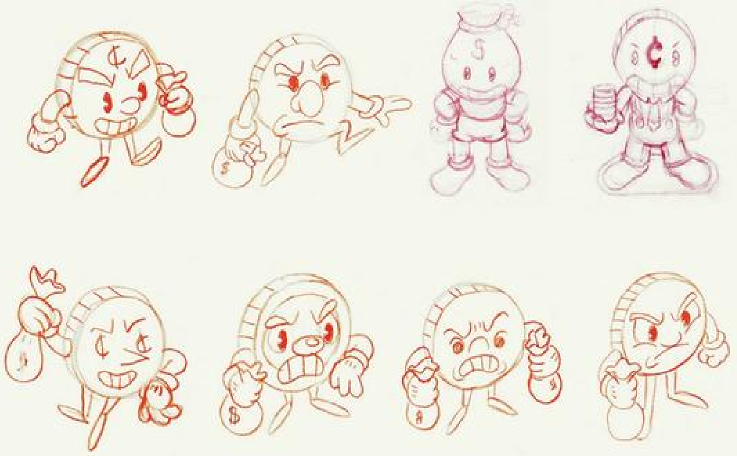
Inkwell Isle One Residents

NON-PLAYABLE CHARACTERS

FROM THE MEMORABLE CHARACTERS we met in the towns that dot the world maps of classic *Final Fantasy* titles to the raucous crowds of colorful cheering spectators in our favorite fighting games, some of our favorite little gaming moments growing up came from non-playable characters. As our development scope for *Cuphead* expanded and we began to think of the game as an adventure more than just a series of boss battles, we quickly embraced the idea of a world map populated by a cast of side characters that could dole out information, pass on hidden wisdom, and generally flesh out the Inkwell Isles. In true 1930s cartoon fashion, we also wanted to set the tone right from the start that this was a world where anything could spring to life—from curmudgeonly coins to affable apples, and everything in between.

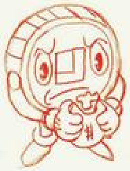


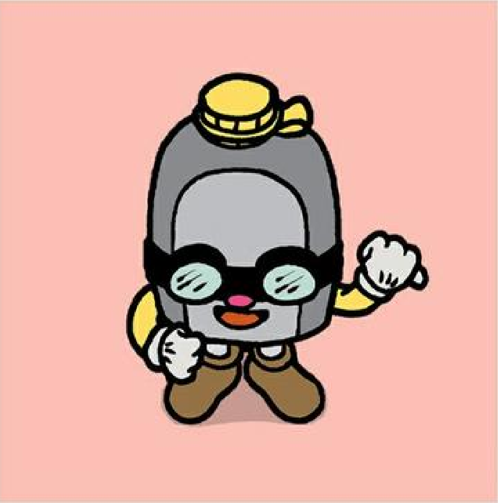




Quint

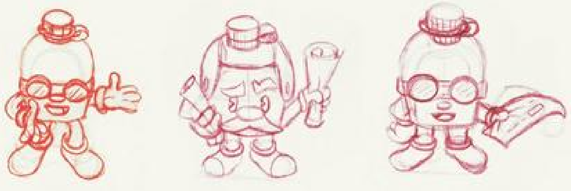
MISERLY AND MORE THAN A LITTLE SURLY, Quint the coin was our way of ensuring players knew to keep a keen eye out for hidden coins they could find and collect on the world map. Animator Danielle Johnson, who worked on all of *Cuphead's* NPCs, played with the idea of a more humanoid character with a money bag or coin for a head, but it felt most era appropriate to instead have the coin take up the bulk of Quint's body.

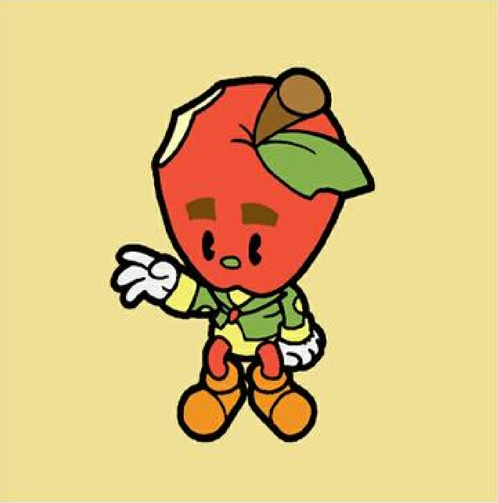




Canteen Hughes

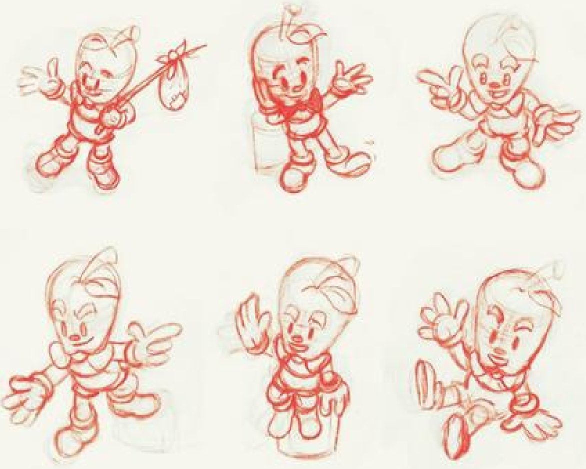
THE EVER-HELPFUL CANTEEN HUGHES (named after legendary pilot and engineer Howard Hughes) is a tinkerer and inventor responsible for building the plane that Cuphead and Mugman fly in the game's shoot 'em up levels (and teaching them to fly it to boot). Other than Cuphead, Mugman, Elder Kettle, and Legendary Chalice, he has the rare distinction of being the only character based on a drinking vessel.





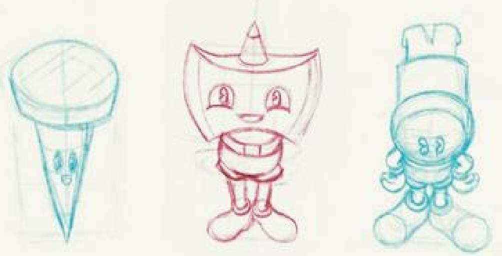
Mac

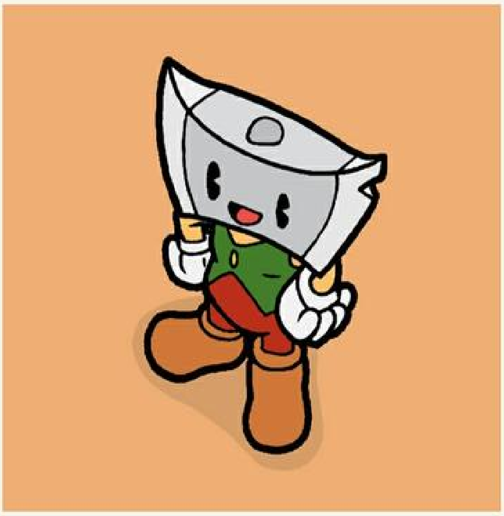
THE FIRST NPC YOU MEET as you leave the safety of Elder Kettle's cottage, Mac is a welcoming gent who just happens to have a Macintosh apple for a head. His happy-go-lucky personality is a subtle nod to Fleischer Studios' character Gabby, who could regularly be seen eating apples during his merry travels. Fitting that Mac later made his starring debut in an MDHR original animated short celebrating the launch of *Cuphead* on Mac computers!



Chip

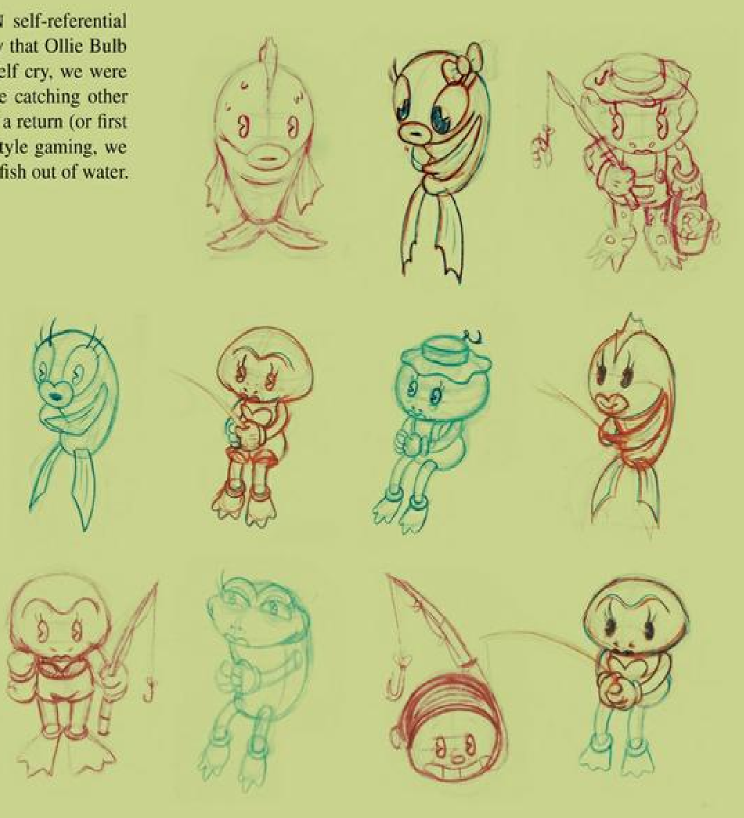
WHILE WE'VE COME TO LOVE all of our NPCs, Chip holds a bit of a special place in our heart, as he was one of the early contenders for the character that would eventually become Cuphead! Ultimately, we made the tough decision to *chop* the idea of an axe-headed main character, but we always knew we'd want Chip somewhere in the journey. He's all about hard work and diligence—two things you need if you're to embrace retro-style difficulty!

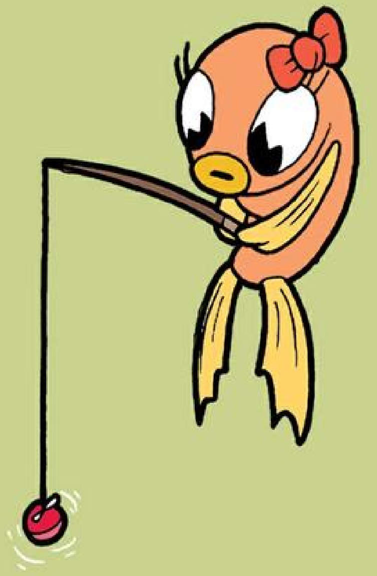


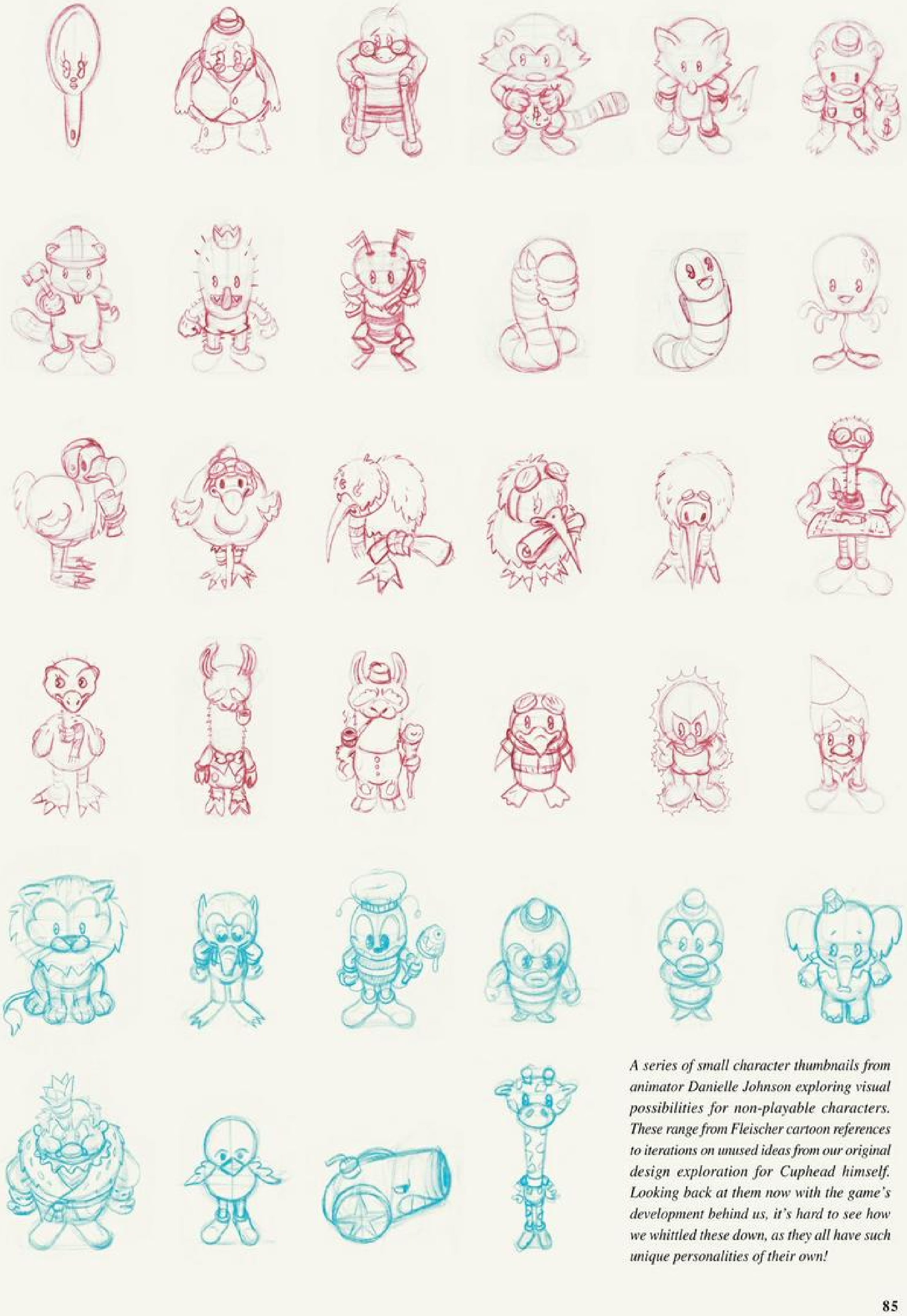


Angel

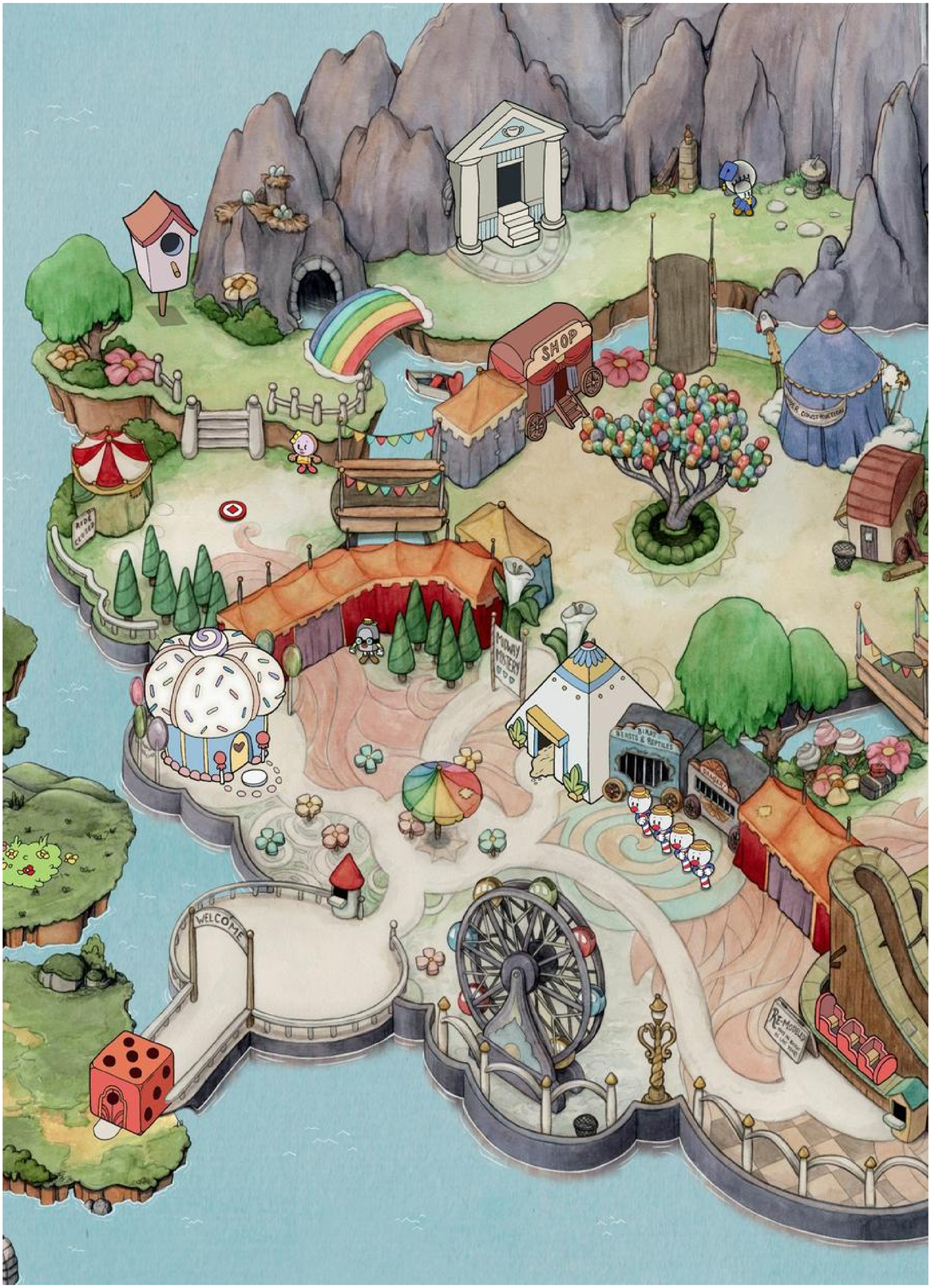
ANGEL IS ANOTHER NOD TO THE OFTEN self-referential visual puns of 1930s cartoons. In the same way that Ollie Bulb of the Root Pack is an onion that makes himself cry, we were drawn to the idea of a fish that spent her time catching other fish. Given that we also felt *Cuphead* might be a return (or first foray) for some folks into the world of retro-style gaming, we also liked the idea of an NPC who was a literal fish out of water.

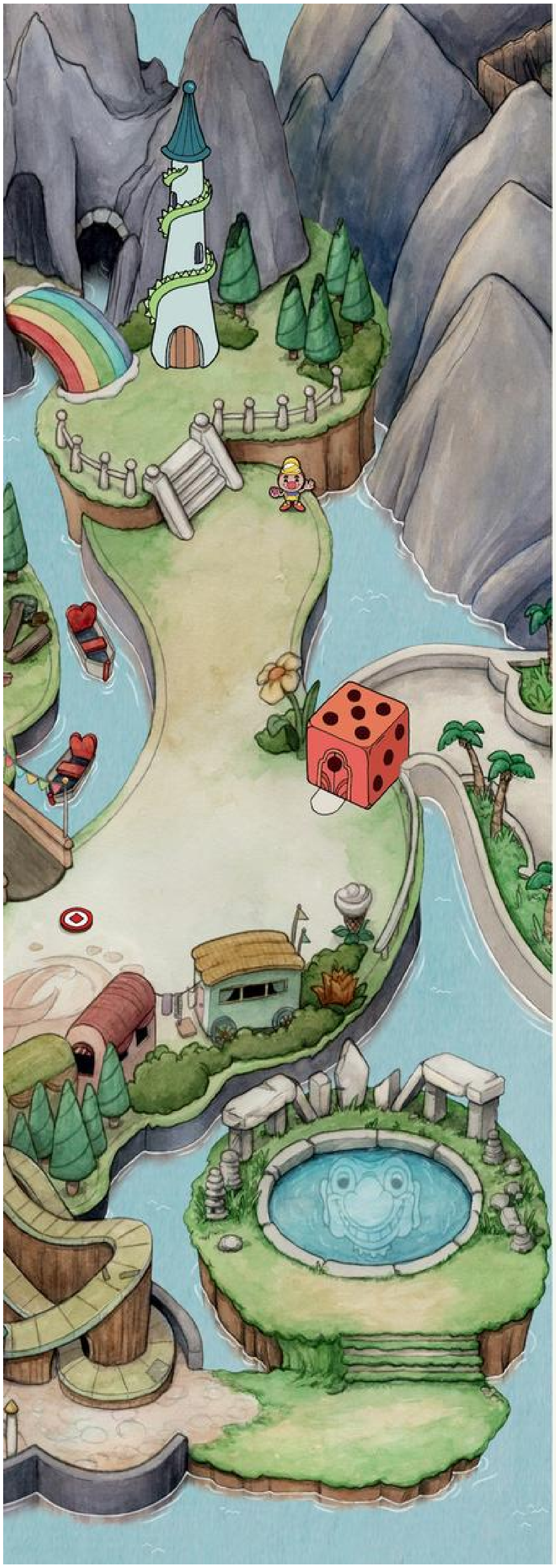






A series of small character thumbnails from animator Danielle Johnson exploring visual possibilities for non-playable characters. These range from Fleischer cartoon references to iterations on unused ideas from our original design exploration for Cuphead himself. Looking back at them now with the game's development behind us, it's hard to see how we whittled these down, as they all have such unique personalities of their own!


SHOP
RIDE CLOSED
MIDWAY MYSTERY
BIRDS BEASTS & REPTILES
WELCOME
RE-MOBILES

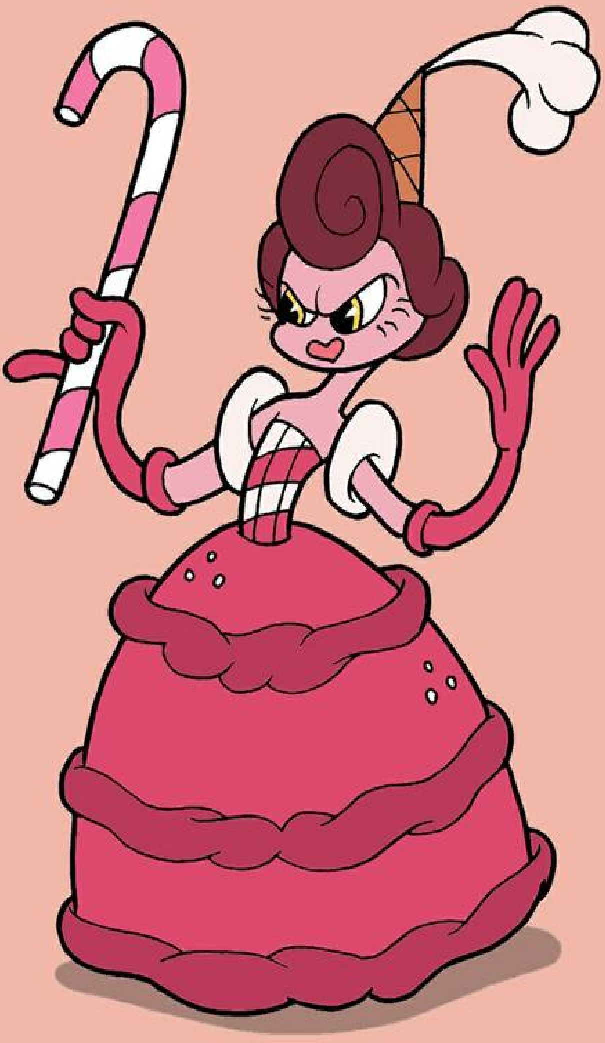


Chapter IV:

Inkwell Isle Two

AS CUPHEAD AND MUGMAN CONTINUED their quest to collect the many souls they owed The Devil, we wanted them—and the player—to leave behind the coziness and nature of Isle One for a place altogether more full of oddities and excitement, in order to allow us to even further push the visual weirdness that was a hallmark of the 1930s. Exploring cartoon, film, and even societal references from the era quickly showed us that for many people, nothing symbolized excitement and wonder more than the circus coming to town. And as luck would have it, Cuphead background painter Caitlin had already been steeping herself in theme park and fun fair references to ensure each Inkwell Isle would have a curated, diorama-like feel. And so it was then that Inkwell Isle Two's visual identity began to come into focus.

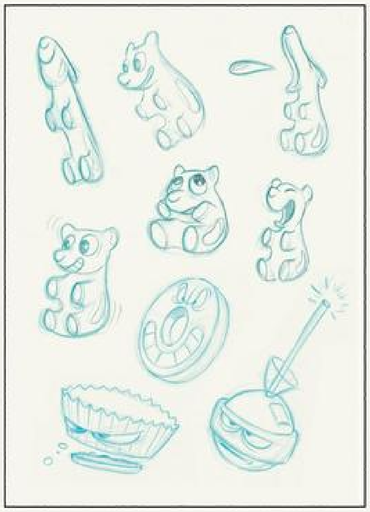
The many toons of Fleischer Studios were a strong touchstone for the individual map elements of this second Isle, as well as perhaps the most iconic circus in animation—the WDP Circus from Disney's 1941 classic, *Dumbo*. Now unlike the standard 11" x 15" size of the paper used to depict our boss backgrounds, each Isle background in *Cuphead* was painted on a custom two foot by two foot sheet of smooth watercolor paper, the fine details filled in with tiny brushes. One particular detail we're fond of in Isle Two? The sign outside Beppi the Clown's level declaring the rollercoaster "remodeled, not as rough as last year"—based, it turns out, on a real 1930s carnival sign!

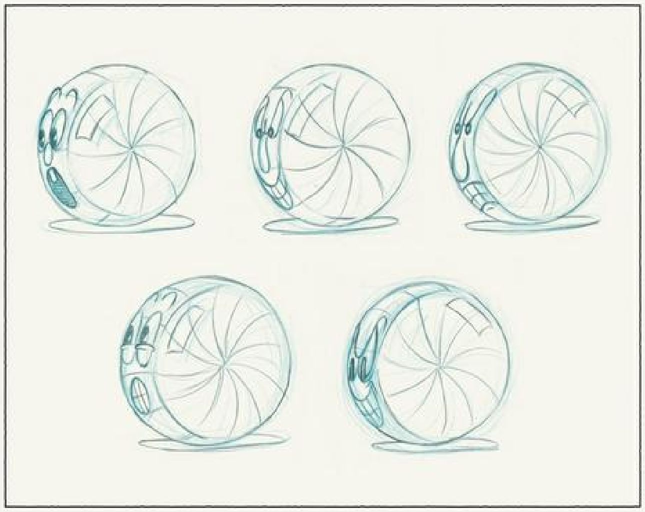


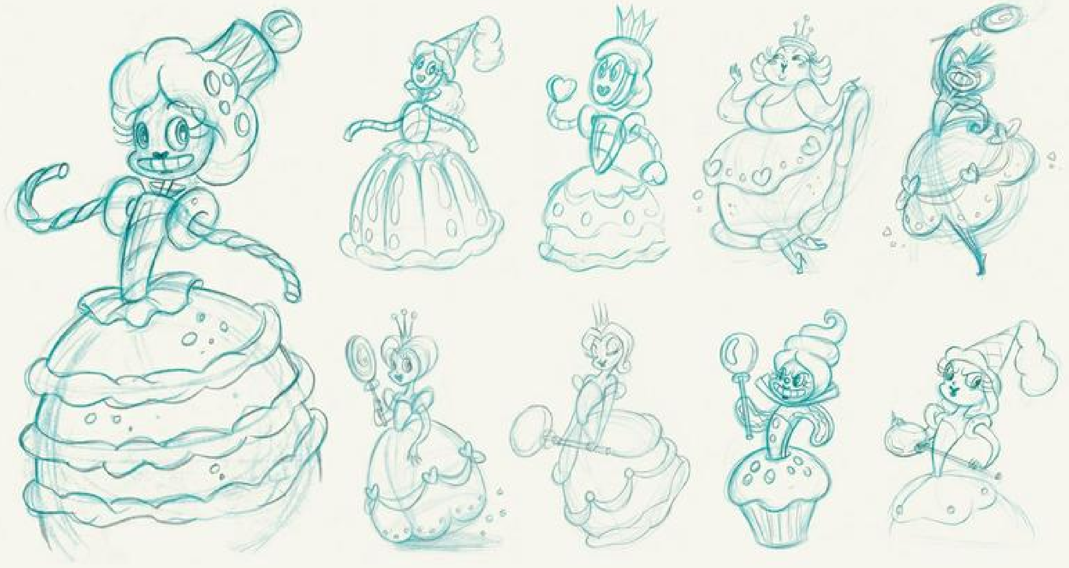
Baroness Von Bon Bon
in
"SUGARLAND SHIMMY"

WHEN DESIGNING BOSS FIGHTS for *Cuphead*, one of our core gameplay techniques was to have multiple possible different attack patterns and find ways to mix and layer them in a way that would create a learnable, but variant, challenge each time the player attempted the battle. Baroness Von Bon Bon became the culmination of that design goal: an encounter where you face three out of five possible unique minions, with an extra hazard added each step of the way.

This gameplay design led us to the idea of a leader with a gang of goons and that meshed perfectly with a candy ruler and her





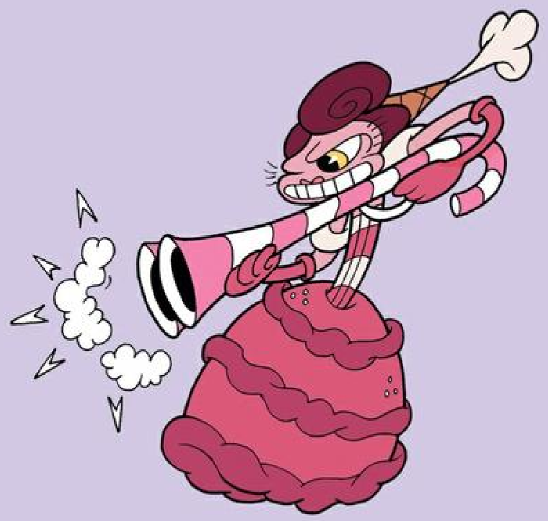


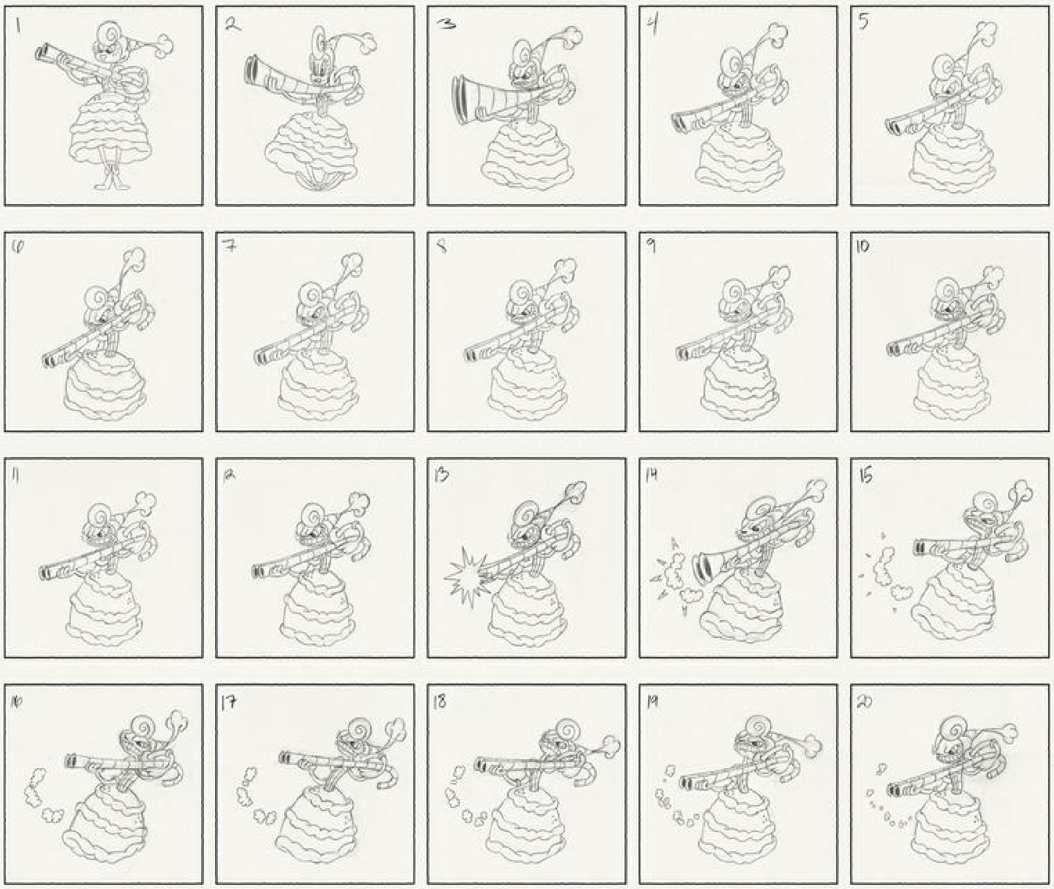
delicious thugs. Named in reference to *Bubble Bobble*'s Baron Von Blubba, the Baroness's visual design is the synthesis of various candy- and food-themed classic cartoons and game levels. Disney's *Cookie Carnival* and Fleischer's *Somewhere in Dreamland* were two key visual touchstones, showcasing just the right mix of tantalizing and twisted that fit perfectly into the style of a *Cuphead* boss fight.

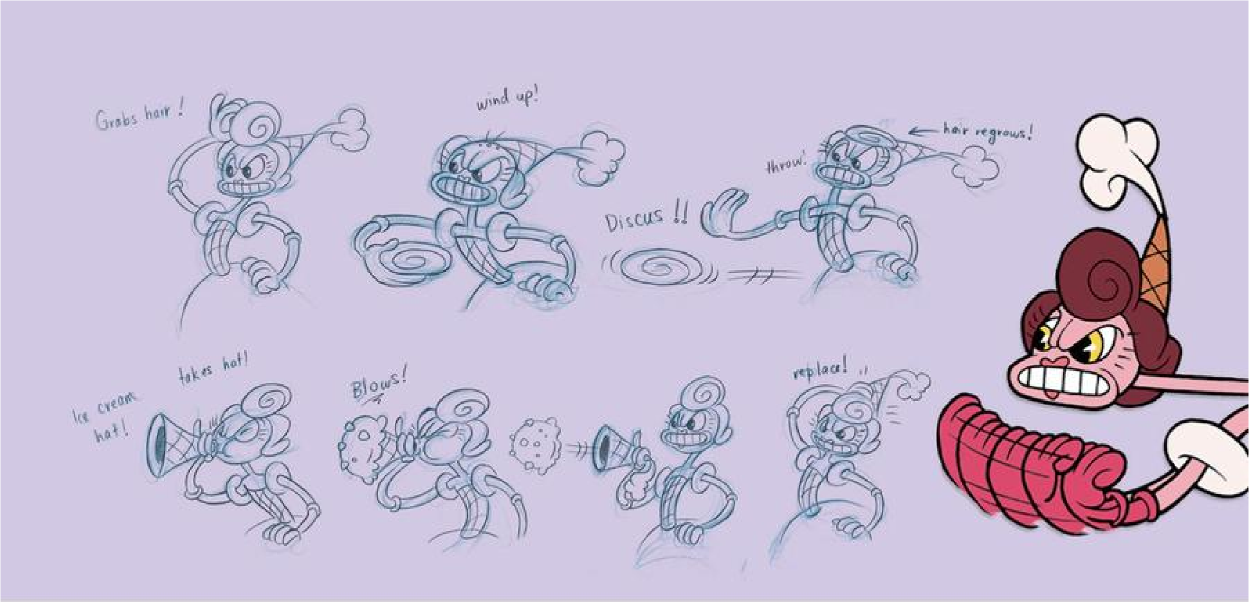
Initially, we tried to make the Baroness entirely made of different candies and sweets, but we also knew that we wanted her to be a commanding presence. So, to accomplish this, animator Tina Nawrocki shifted more towards edible accents on a human character, which visually separated her from her minions and was more in line with the cartoons of the era. Additionally, we elevated her above the play field atop a monstrous castle, inspired by the living house in *Swing You Sinners*, whose imposing chase would serve as the visual crescendo in the final phase of the fight.

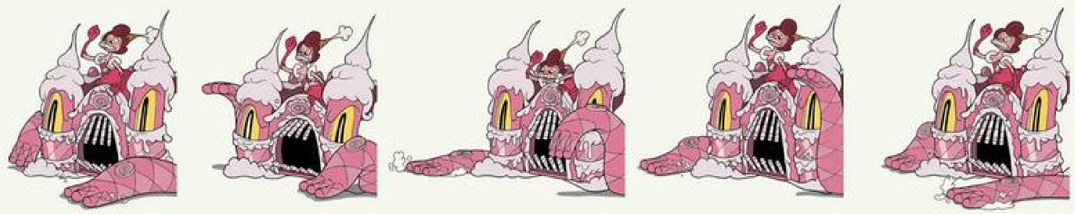
Because so many of the *Cuphead* bosses have different projectile attacks with different behaviors, we strove to find ways to create clearly differentiated visual warnings that allow the player to quickly identify what's coming and how they should react to it. Wherever possible, we avoided using guns and instead focused on more imaginative ways to source projectiles. For the Baroness, animator Tina Nawrocki depicted her candy cane wand as a blunderbuss of the type you'd see Mickey holding in Disney's 1937 short, *Moose Hunters*.

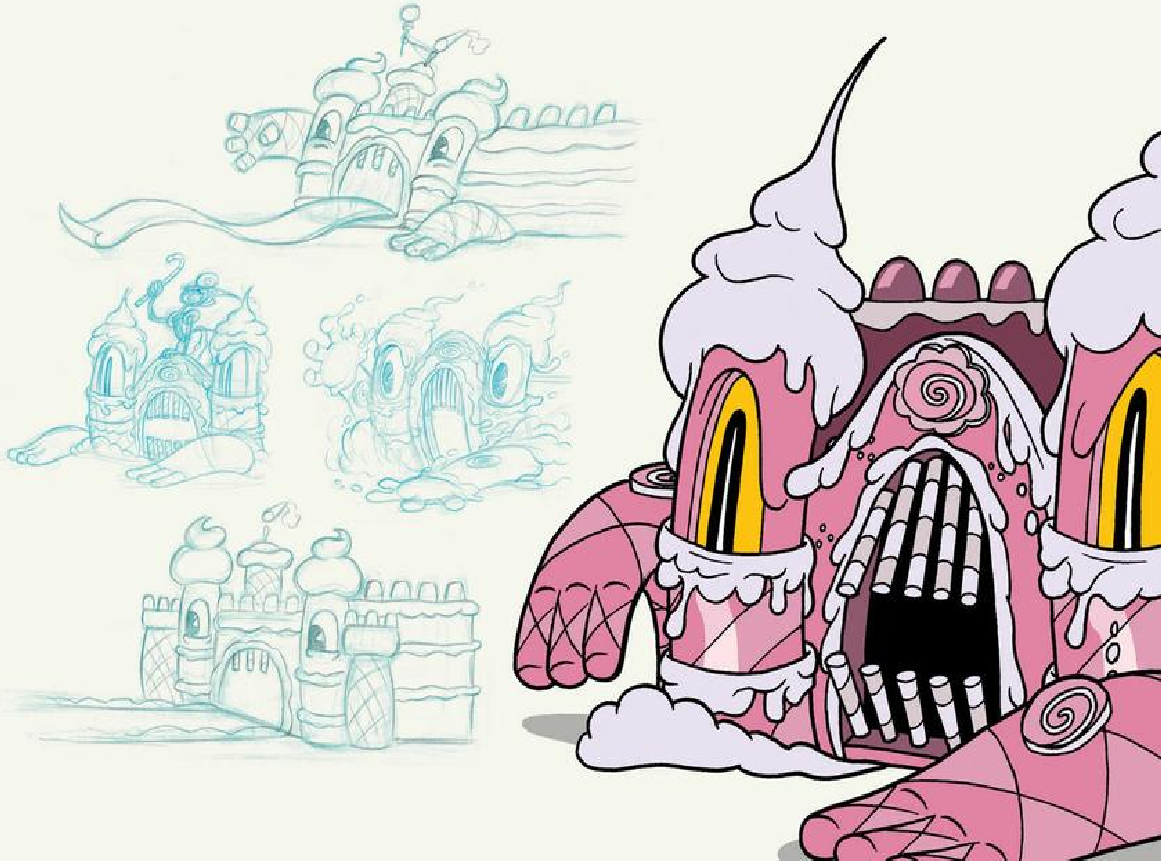
For the Baroness's homing projectile attack, we had her throw her head at the player both as a call back to her head flipping intro animation and as a reference to the infamous queen Marie Antoinette's grisly demise. Cartoon magic luckily granted us license to grow back and throw her head as many times as we needed!





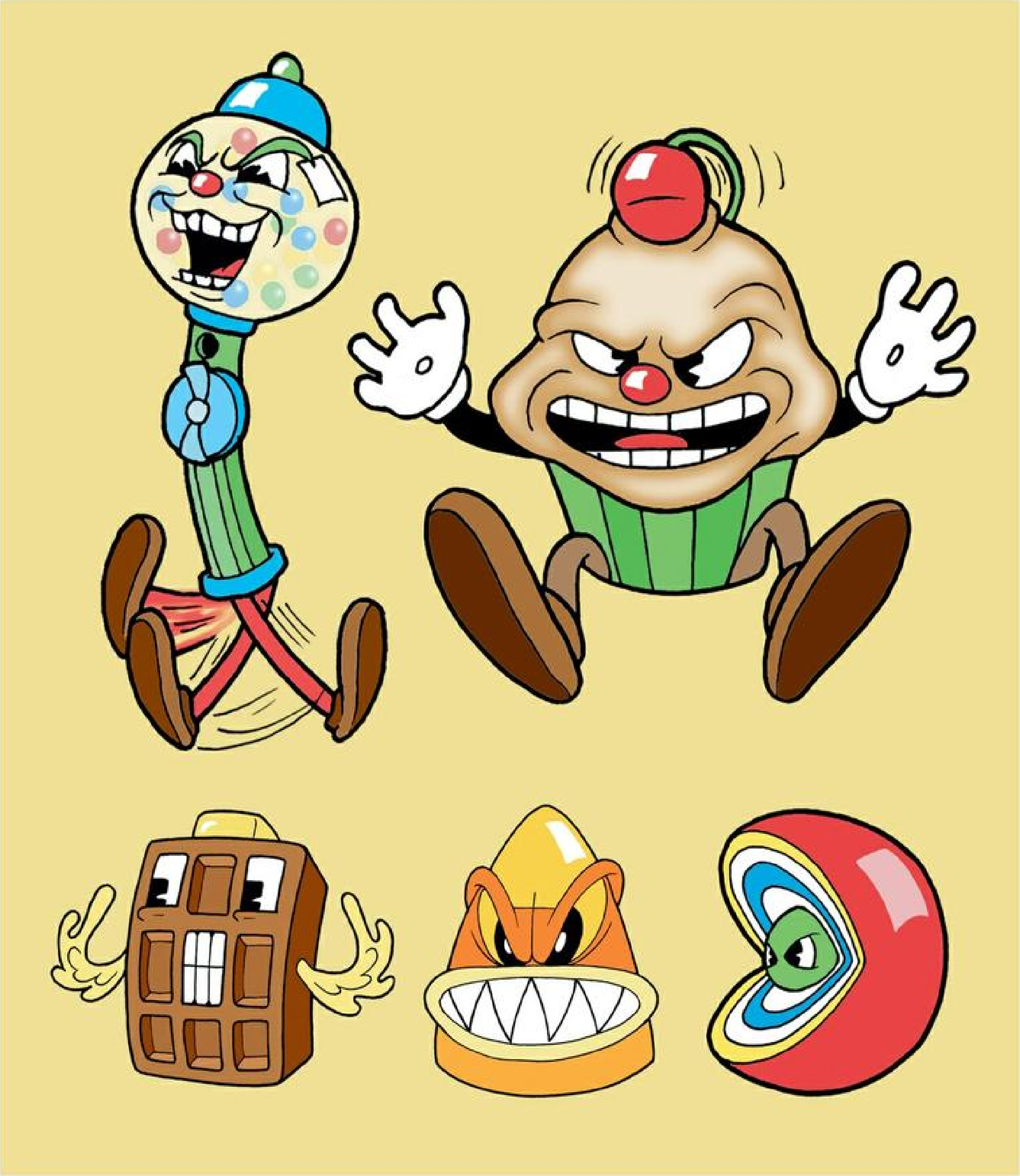

Grabs hair!
wind up!
throw!
← hair regrows!
Discus !!
Ice cream hat!
takes hat!
Blows!
replace!

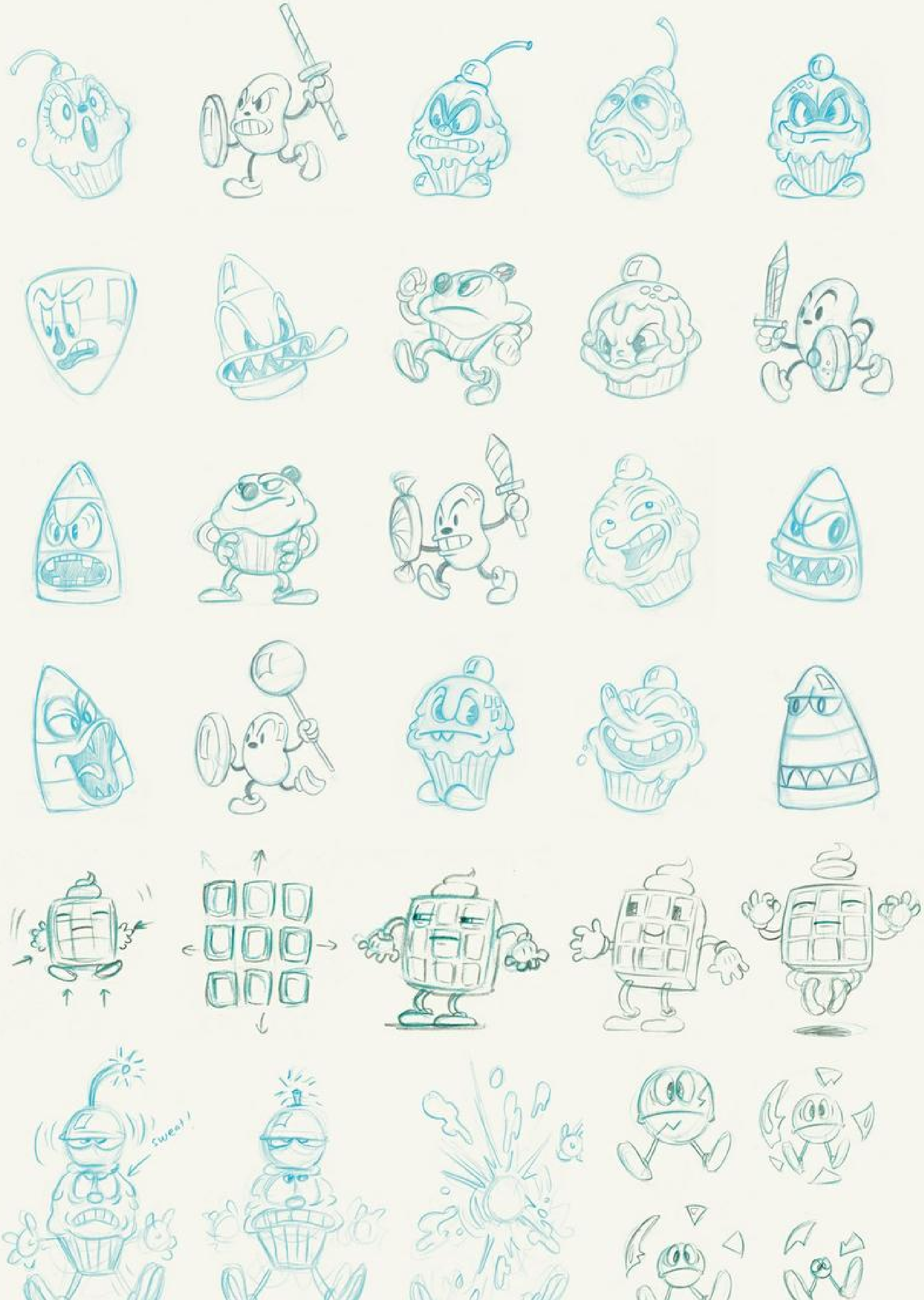


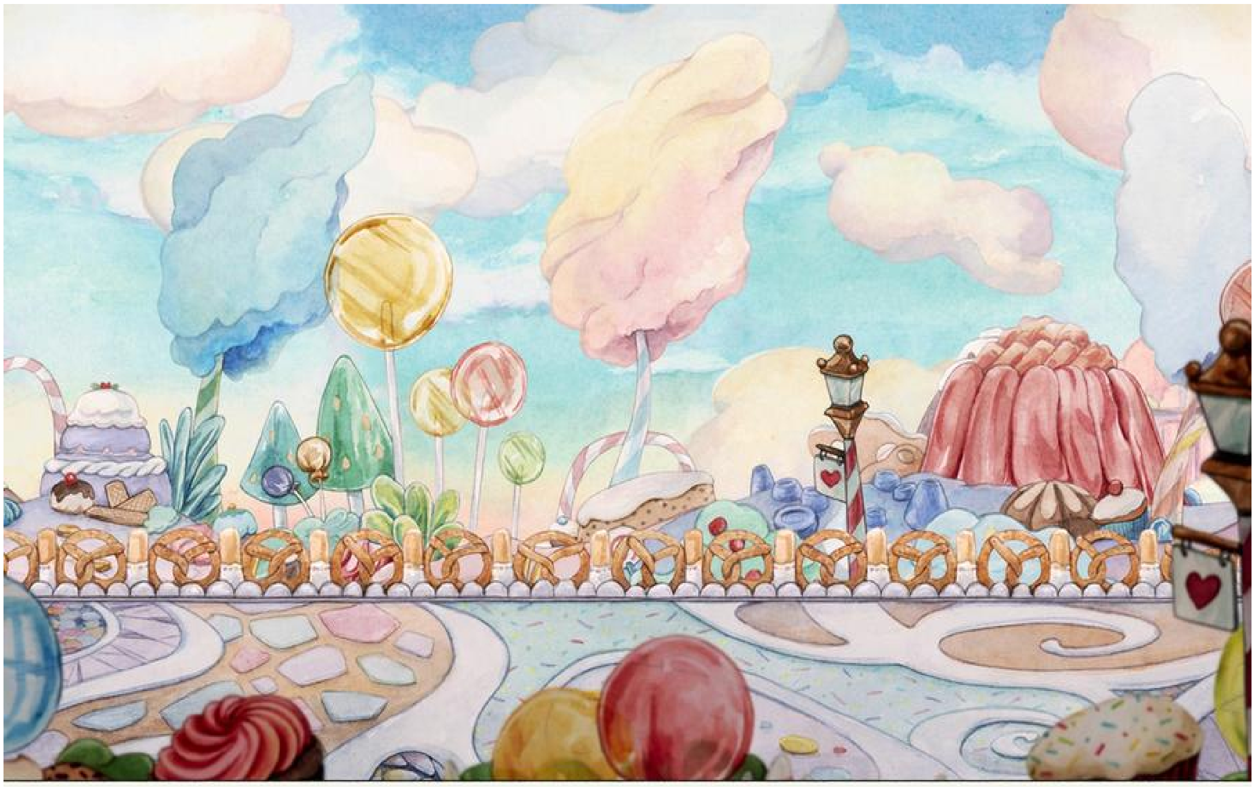


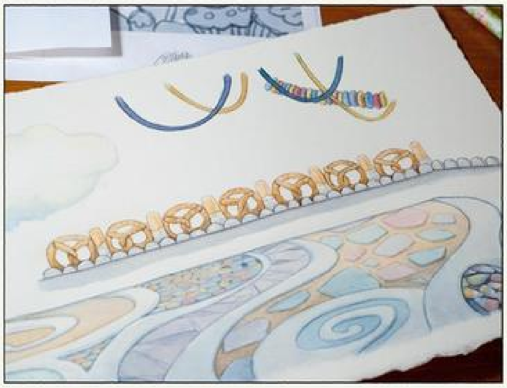
Candy Minions

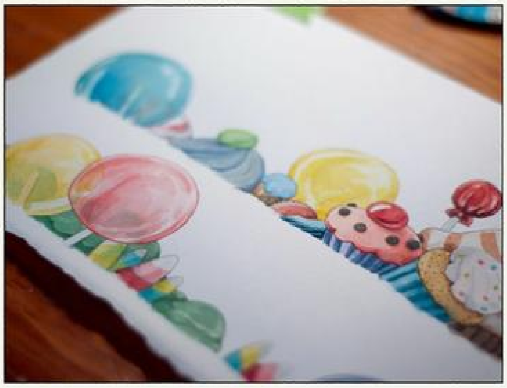
WHEN COMING UP WITH the Candy Minions, we wanted to express a variety of different sweets, so Baroness animator Tina Nawrocki explored everything from baked goods to commercial candies to candy making machines. We had the boss gameplay already completed, so the mission was to find the visual representations that would best match the actions we had programmed. What concept finally gets used for which boss or attack is a collaborative process of back and forth between the artists and designers. Usually, we end up programming at least one extra attack for a given boss and then choose which ones to finalize based on what works best for the overall vision. For instance, there was originally a sixth minion: a flying goon inspired by the Red Arremers in *Ghosts 'n Goblins*, that was cut for pacing reasons.




sweat!



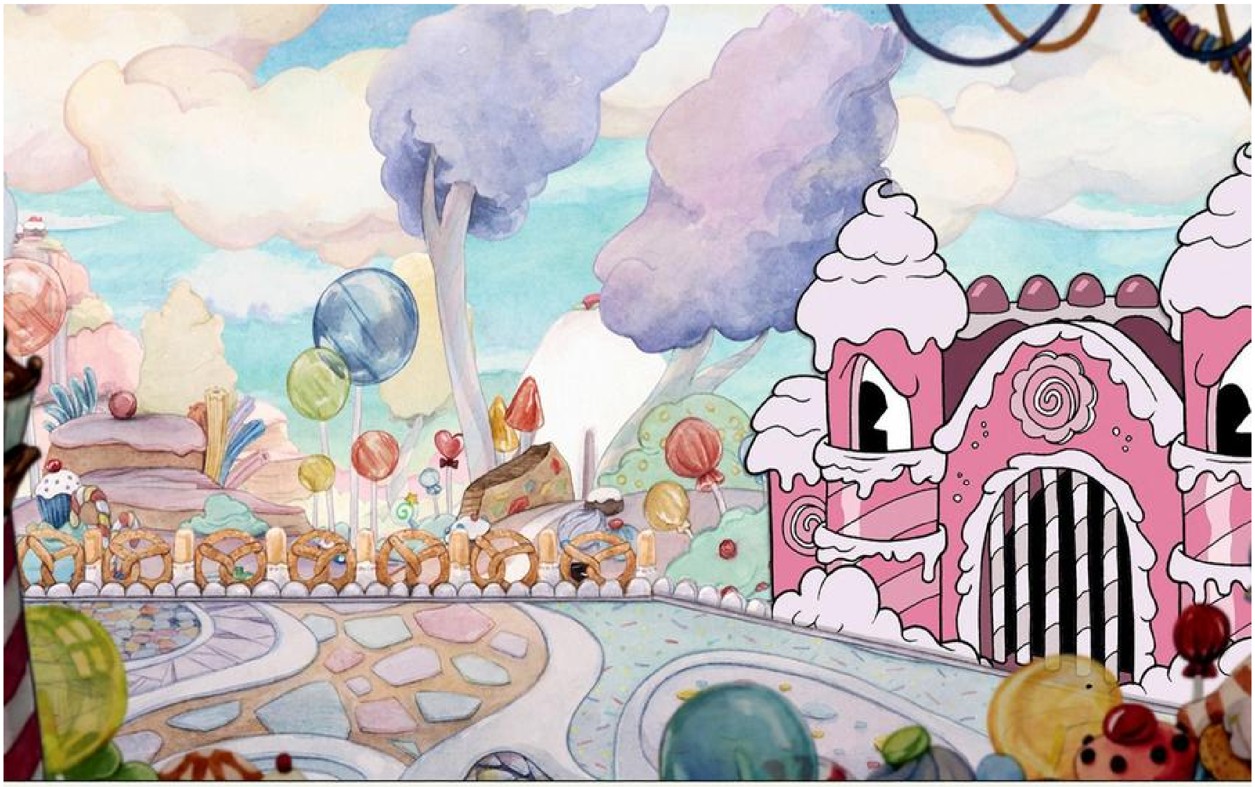


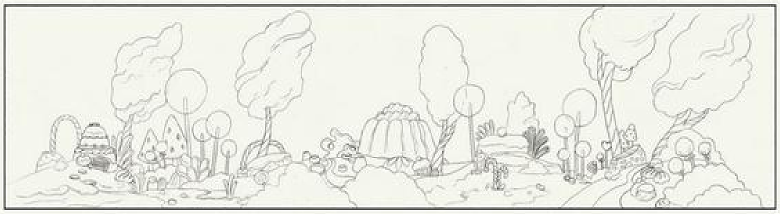


Sugarland Shimmy Background

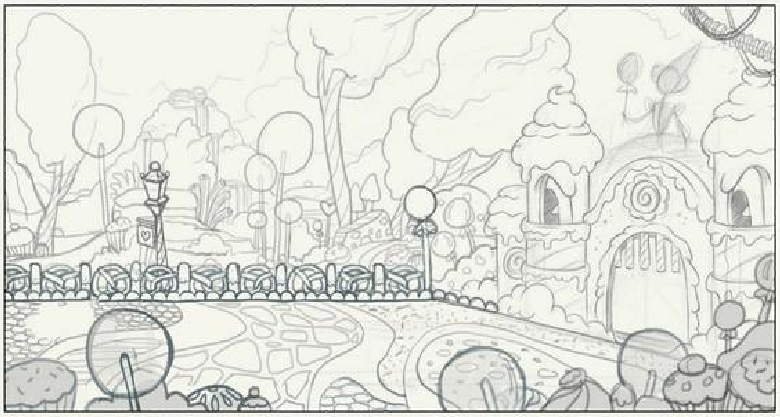
WHEN SETTING OUT TO MAKE the Baroness's background, we tried to conceptualize an entire world of candy. We wanted it to be bright and inviting, but also to convey that Cuphead was in an unfamiliar and unique area that existed on the island with the rest of the carnival. We approached each detail wanting to convey that magic, making sure the candy floss trees were fluffy in just the right ways. We researched era-appropriate gingerbread houses and jelly molds, lollipop shapes, and icing styles to ensure that all of the candies and sweets represented in the stage stayed true to the types that were available in the 1930s, both in color and form.

We also wanted to pack the scene with as many homages as possible to classic candy levels from games of our youth, like *Mickey's Castle of Illusion* and *Kirby's Dreamland*. We also drew from imagery in cartoons like Van Beuren's *Candy Land* and especially Columbia's *Bon Bon Parade*, which was a major influence on the way the candy was rendered.



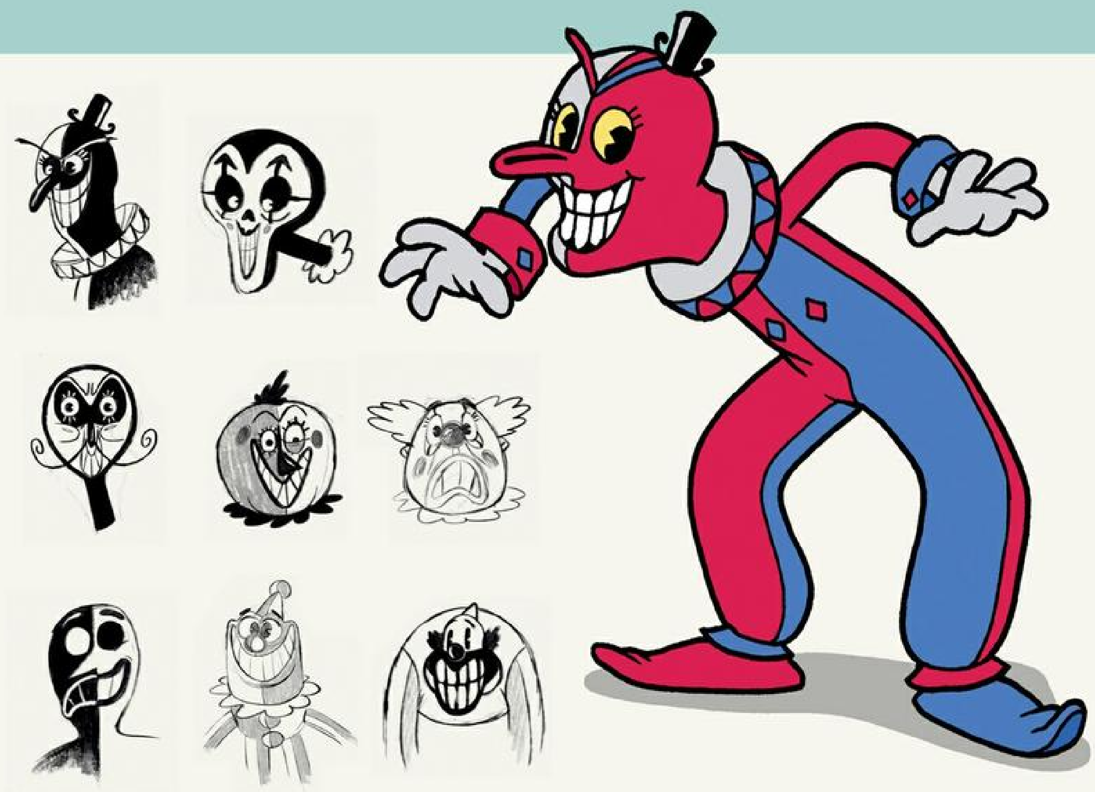


Unlike any other boss fight in the game, Baroness Von Bon Bon's ground plane needed to be able to scroll horizontally for an indefinite amount of time, so the painting needed to be specially laid out to be able to loop seamlessly.



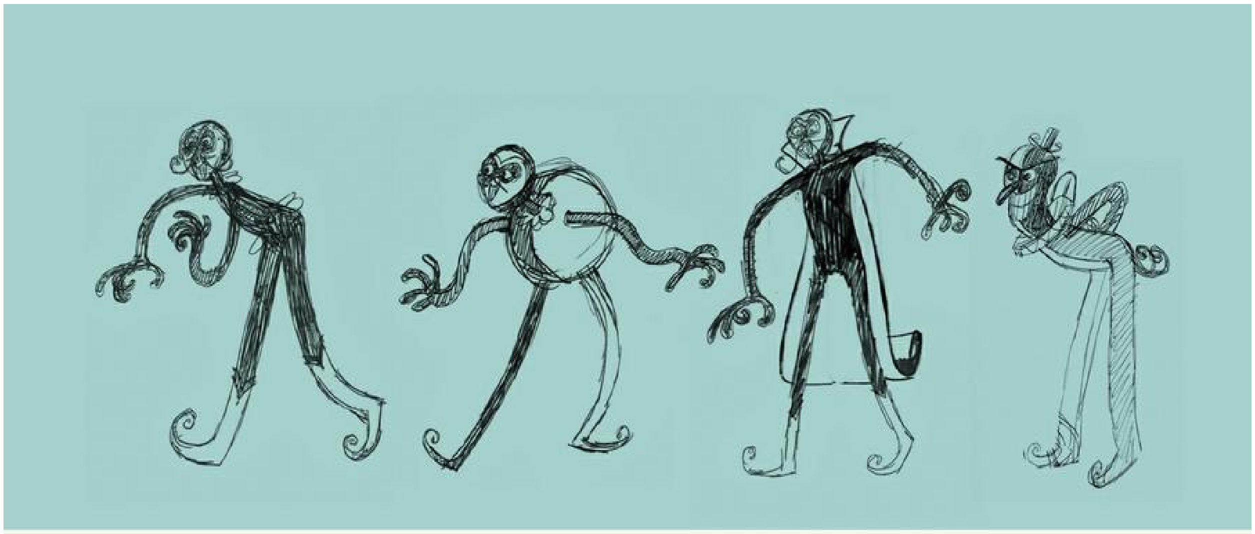
Beppi the Clown
in
"CARNIVAL KERFUFFLE"

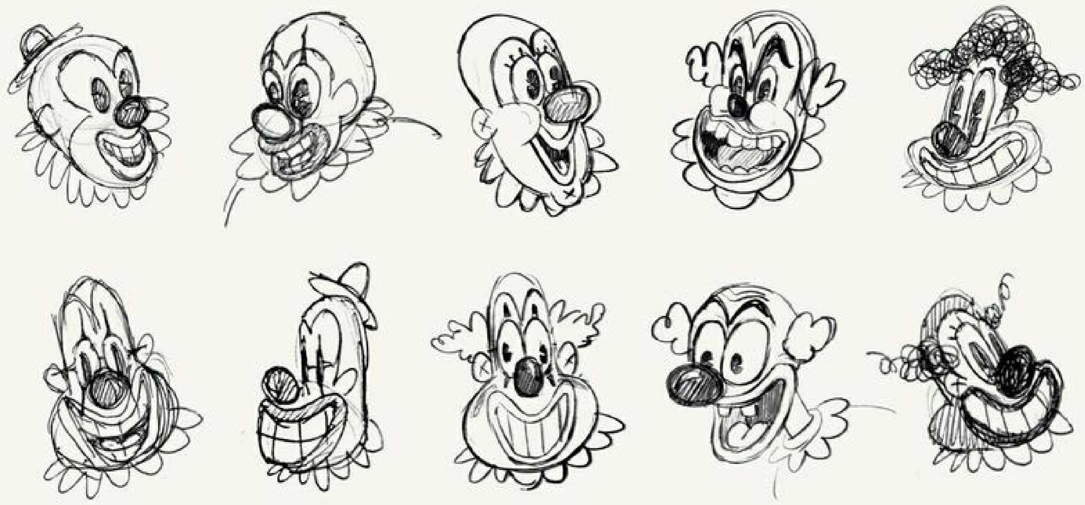
WE ALWAYS KNEW THAT WE WANTED a clown boss in *Cuphead* because Fleischer's Koko the Clown was such an iconic character in the animator's oeuvre and it seemed wrong to so heavily reference the animation of the 30s and not have such an homage. A clown was a perfect fit for a boss character, full of possible gags, pliable enough to work with a variety of gameplay designs, and visually arresting enough to stand out. We had a concept for the fight, but what we didn't have was a lead. We never set out to create such a nightmarish monster.

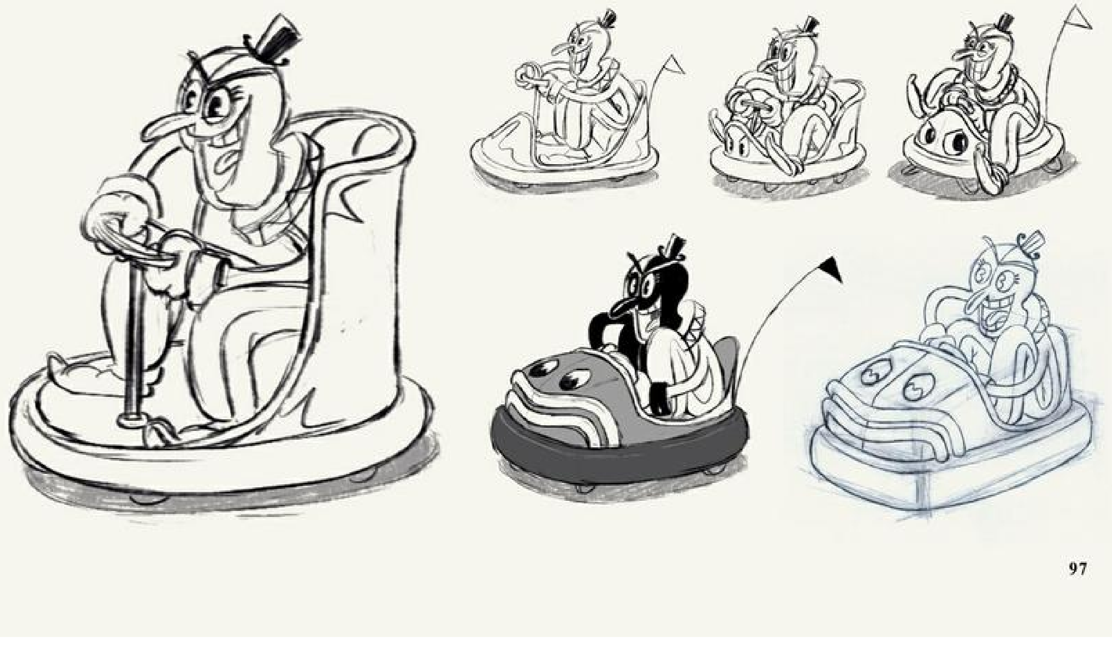


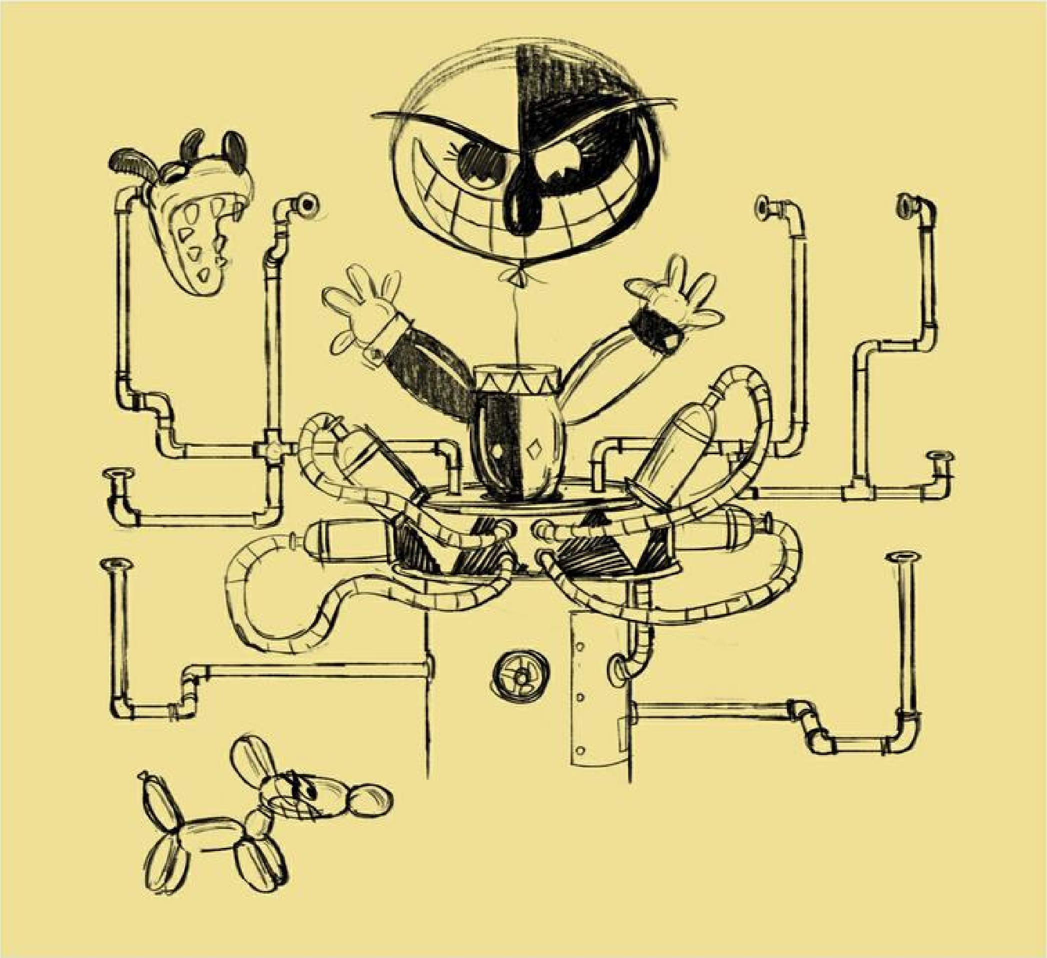
We struggled with the initial design of the clown. What would eventually become Beppi, a name we found from a deep dive into old horror and clown films from the 1930s, started off as a much more typical face-painted, red-nosed clown archetype. A lot of the visual exploration at that time was just discovering what we didn't want. It wasn't until we came across the bizarre 1924 thriller called *He Who Gets Slapped*, a film about a clown whose entire show is getting slapped by other clowns, that we found inspiration for the split suit. From there, animator Hanna Abi-Hanna kept pushing more and more towards the surreal. We knew that many people found clowns unnerving and rubberhose animation always had a penchant for the twisted, so we kept pushing the face to see just how nightmarish we could go while still maintaining the feel of the era.

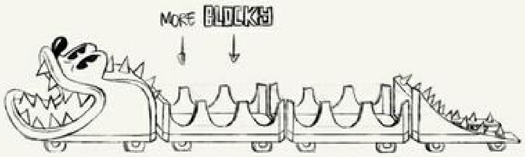
Eventually we came to the final design through a lot of trial and error. For Beppi's color treatment, we purposely lampshaded his asymmetrical color scheme as a nod to the classic asymmetrical fighting game characters that would have to switch their left and right features every time they faced the opposite direction. This was due to the mirroring of sprite animations required under the technical limitations of the time.

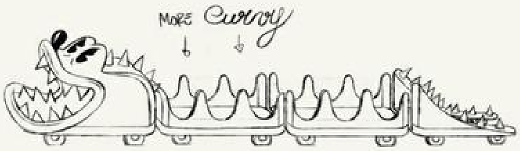


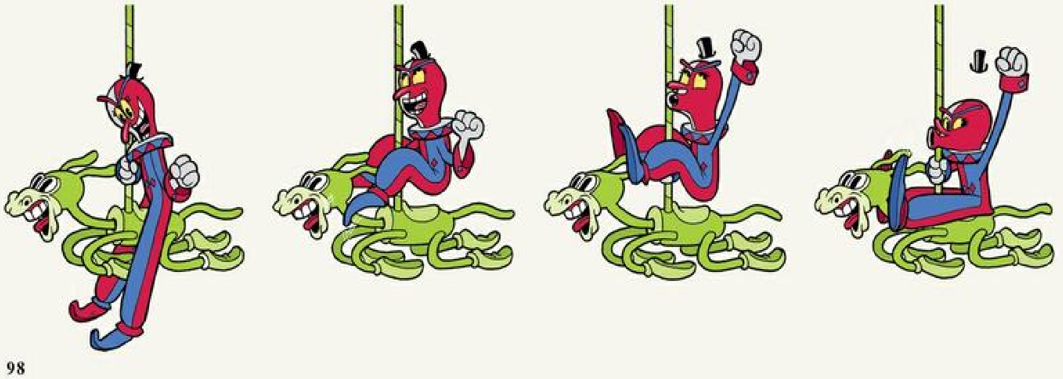


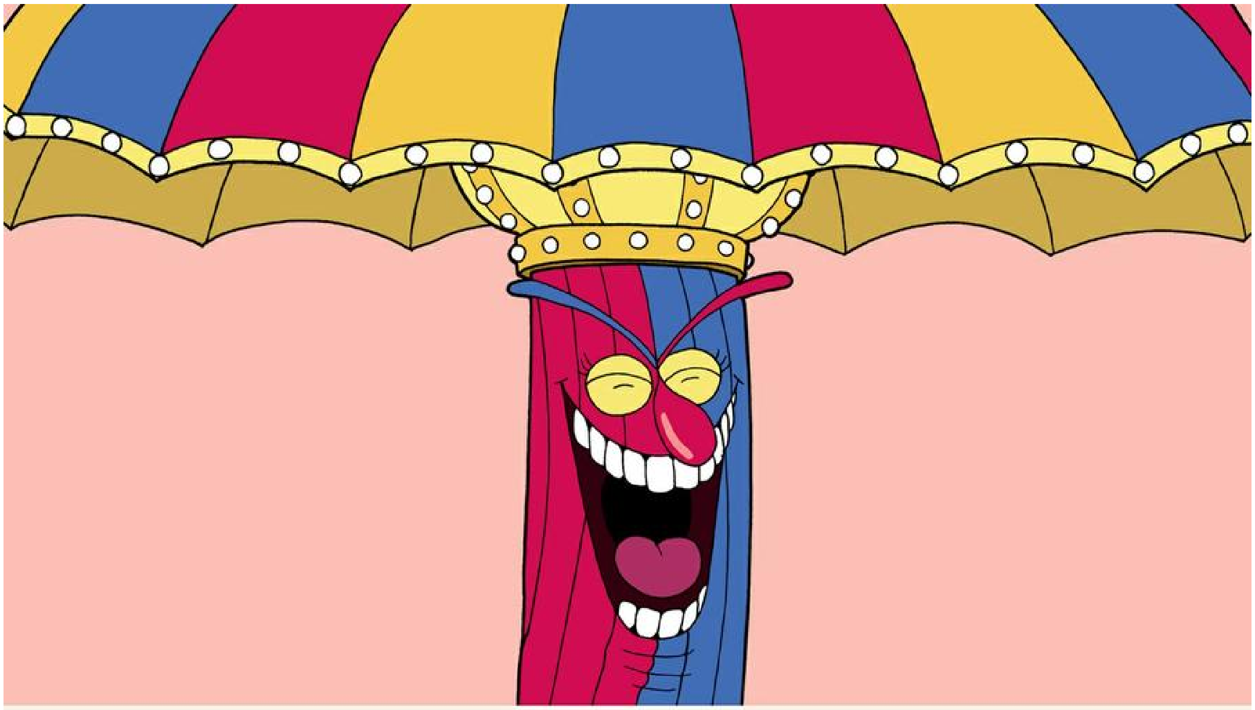


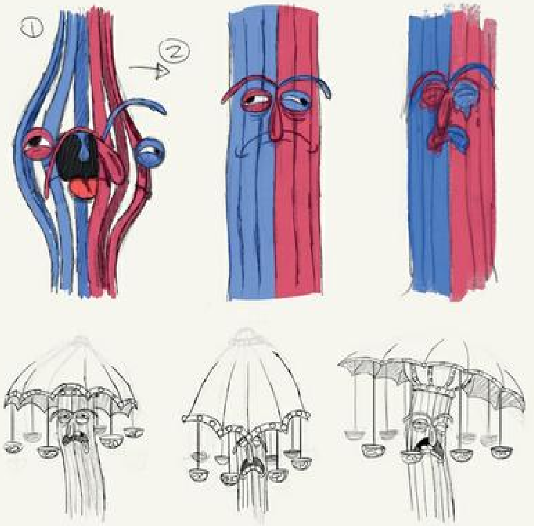


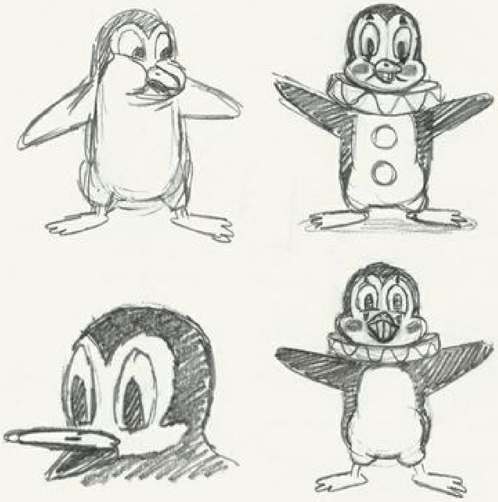

MORE BLOCKY


MORE Curvy

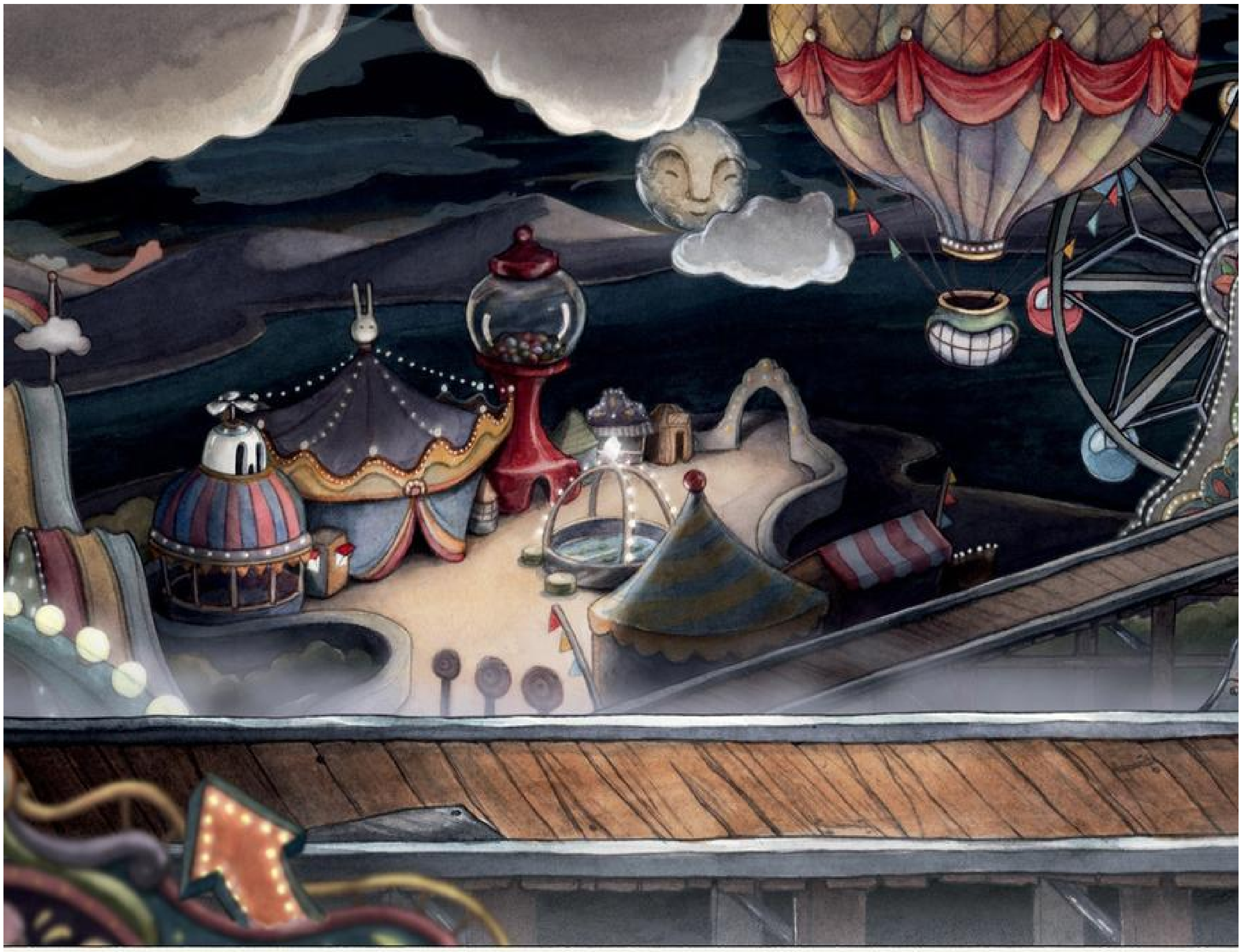








Beppi is one of the few fights in the game with four completely different phases. While the visual pliability of a magical evil clown allowed us to maintain almost all of the original boss attack concepts from prototype to final version with few gameplay changes, Beppi's evil roller coaster transformation did see some alterations along the way. In an early prototype, it entered in the side and then trawled along the perimeter of the screen, becoming a mechanical ouroboros, but it was too difficult to pull off with coherent art design, and the screen became too cluttered with motion to properly play. The minimization of that element ultimately improved the overall fight, allowing the roller coaster to become a wildcard to mix with Beppi's other attacks, and granting us the room to express his personality through *Dynamite Dux*–inspired balloon animal dog heads and dayglo-colored merry-go-round pole donkeys. Finally, the fight culminates in a screen-filling homage to the horror carousel in Tim Burton's *Beetlejuice,* populated by baseball-throwing circus penguins inspired by Chargin' Chucks from *Super Mario World.*

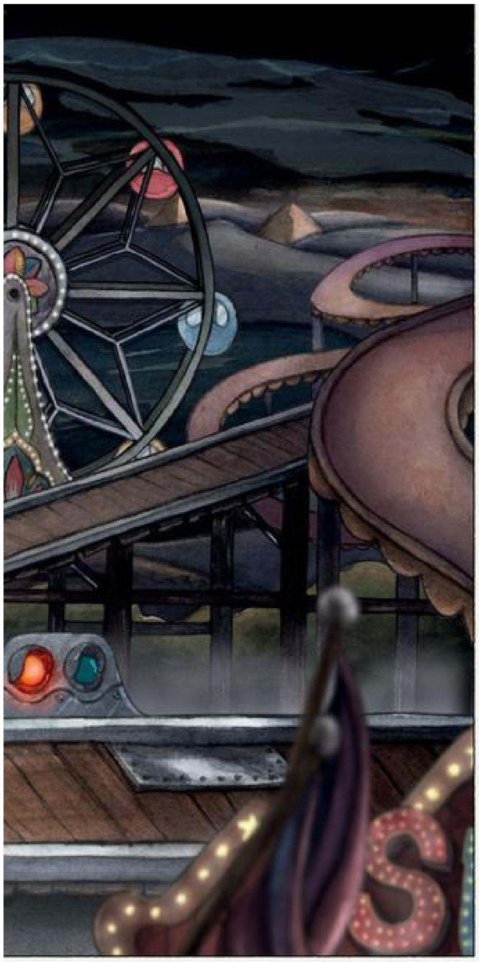


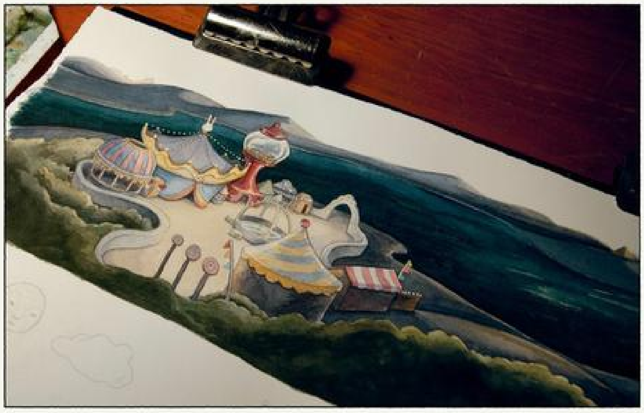
Carnival Kerfuffle Background

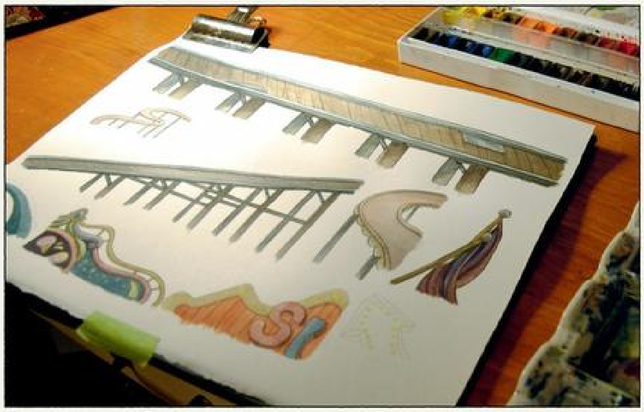
WE NEEDED THE CIRCUS WHERE BEPPI resided to be an extension of his personality, so we knew we had to do a complete about-face from all of the sunny and bright backgrounds that Cuphead had encountered up to this point. Beppi's residence is a carnival within a carnival, a twisted circus with an off-kilter perspective, a dutch-angled horizon, and unusual geography. There's an artificiality to Beppi's lair, with desolate sky line, cut out clouds, and a moon with an indecipherable expression. In the foreground, signs with a mess of twisted fringing hint to an unravelling of reality. Because so many of Beppi's forms cover large parts of the background, we starkened the lighting and deepened the shading to create contrast.

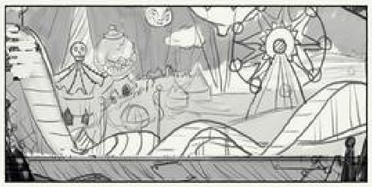
Beyond cartoon nods like *Pinocchio's* Pleasure Island and *Betty Boop's May Party*, we looked at 1930s era posters for circuses and theme parks to ground the tents, lighting design, type faces, and patterns of amusement to showcase the time and ensure authenticity.

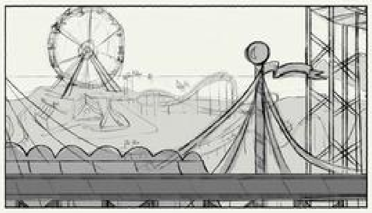
Unlike a lot of the backgrounds of *Cuphead* bosses, the layout of Beppi's stage needed to have clear, eye-catching sight lines toward background animation, as it played an important role in signaling to the player when the roller coaster attack would be entering in from the side. We angled the background track the roller coaster travels on to clearly delineate it from the foreground baseline and other background animations, and draw the player's eye towards it as it leaves the screen.

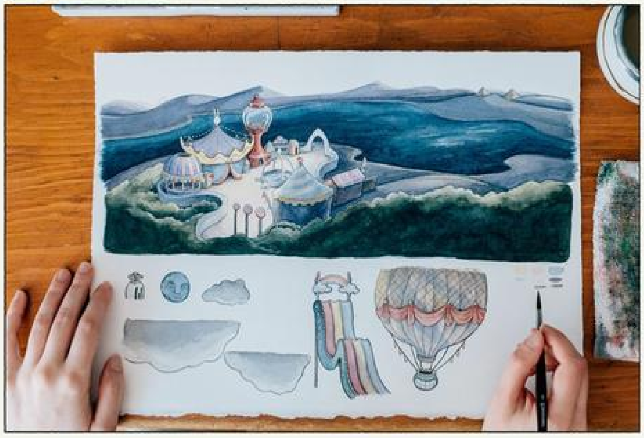




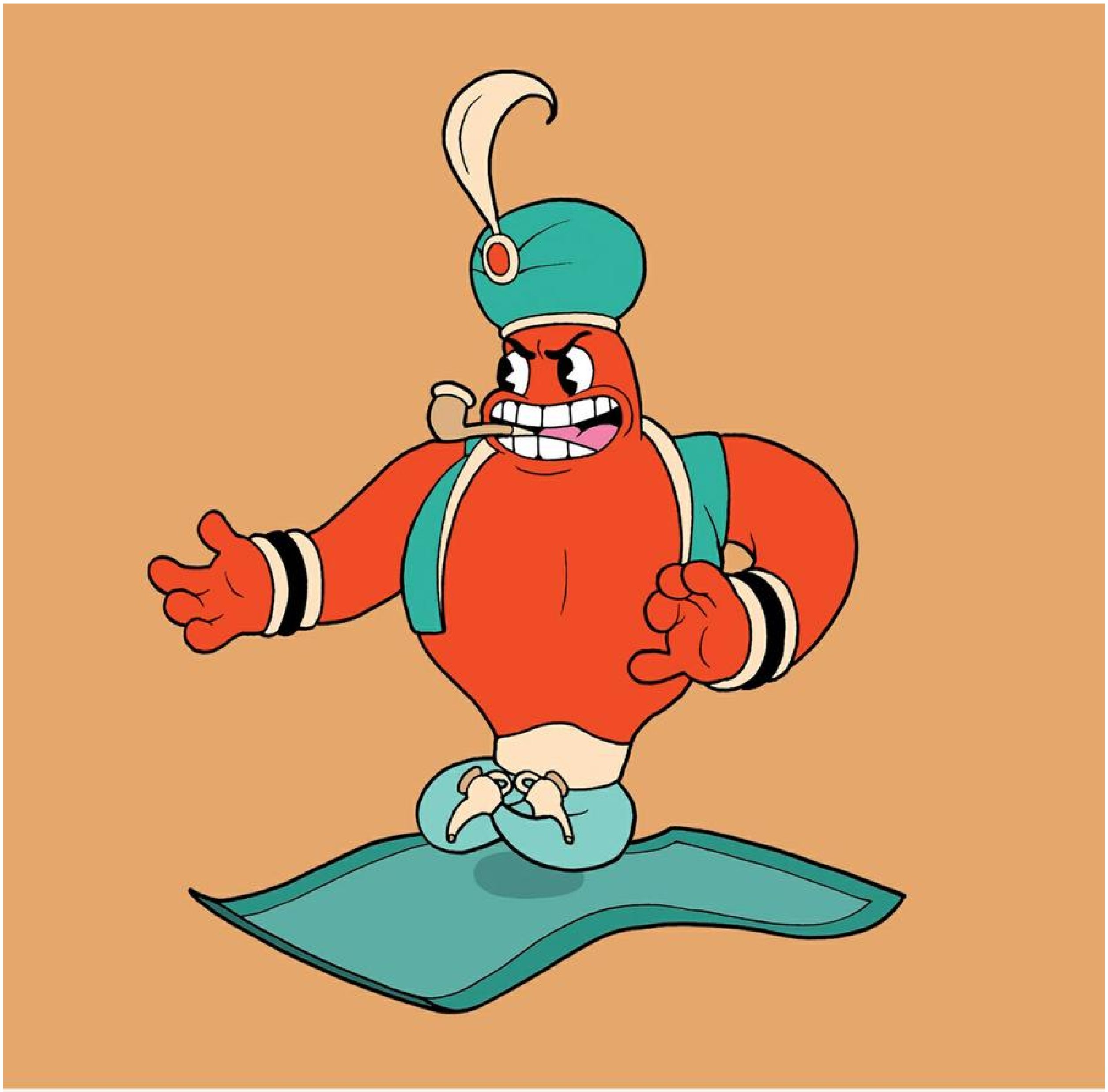






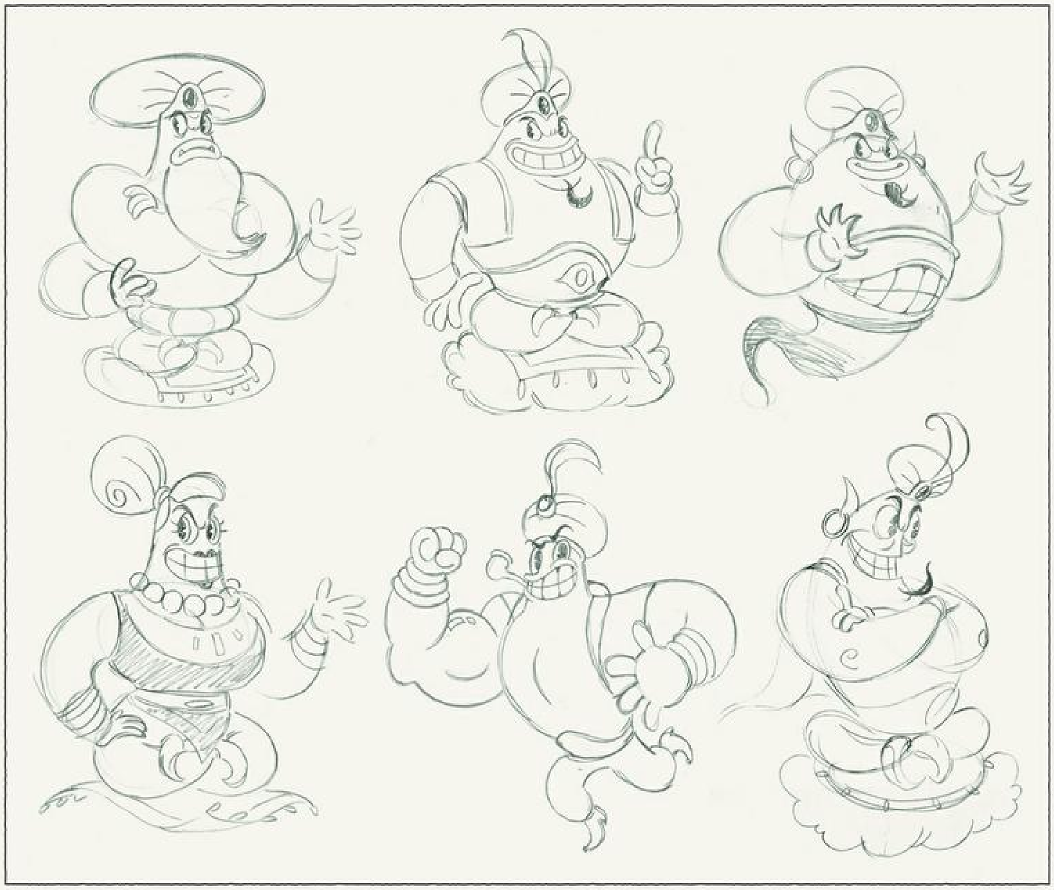


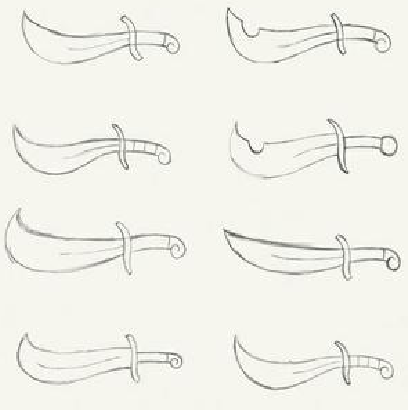
This series of pictures shows how Beppi's background went from concept sketches to individual painted elements to the final composite image with all of its animating parts. Note how the early sketches started with a brighter sky and went more sinister as it evolved.

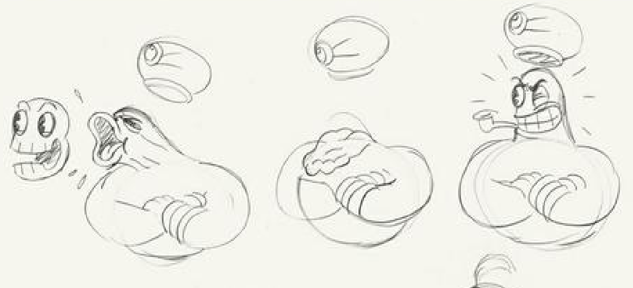


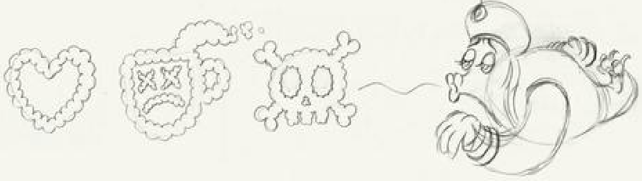
Djimmi the Great
in
"PYRAMID PERIL"

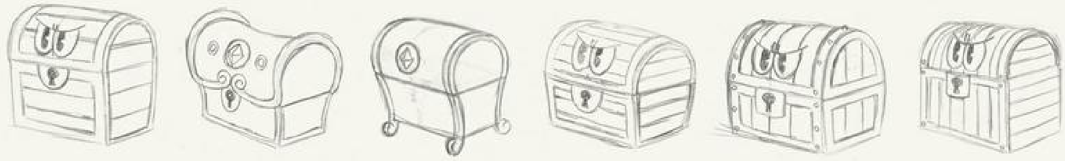
DJIMMI THE GREAT'S VIVACIOUS PERSONALITY and marvelous morphing magical powers really let our animators flex their skills. While initially conceptualizing Djimmi, whose name is a portmanteau of Chad and Jared's father's name Jim and the root word for genie "djinni," we went through a lot of iterations that adorned him with various accoutrements and details that busied up the design. Knowing that he'd be morphing heavily throughout his phases, we realized we needed to have instantly noticeable strong core elements that could tie everything together. So we greatly simplified his form and found the Djimmi we know today.

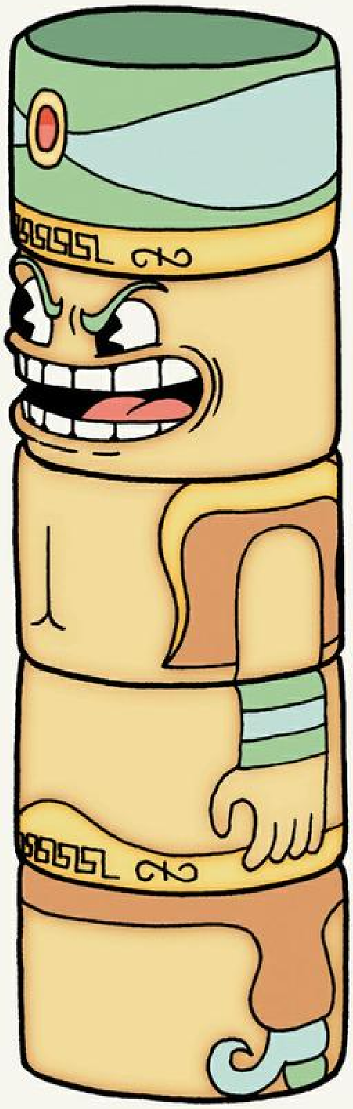


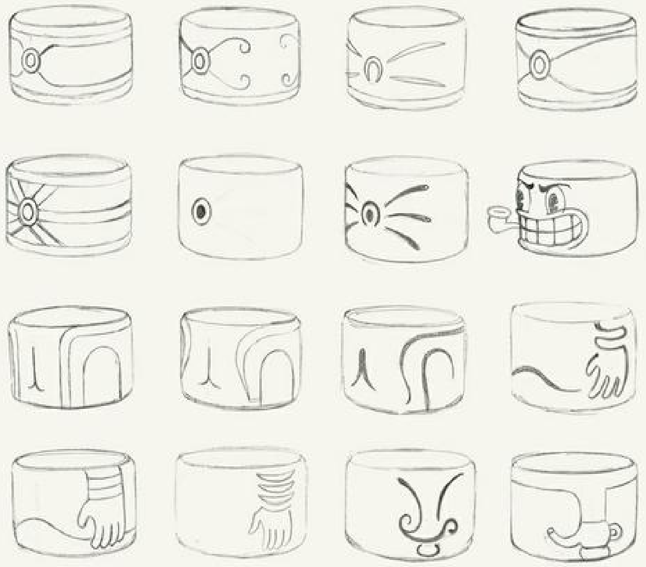


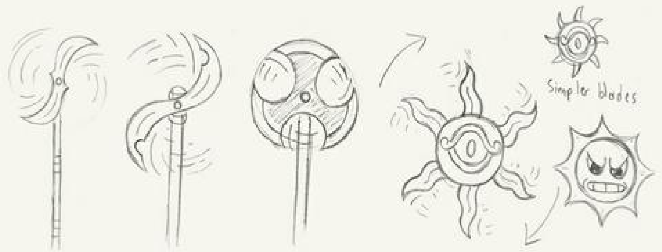




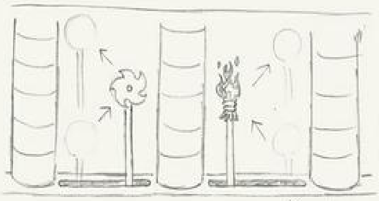








Simpler blades

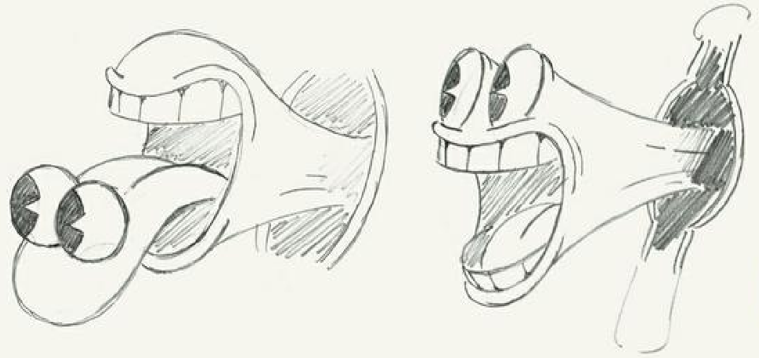


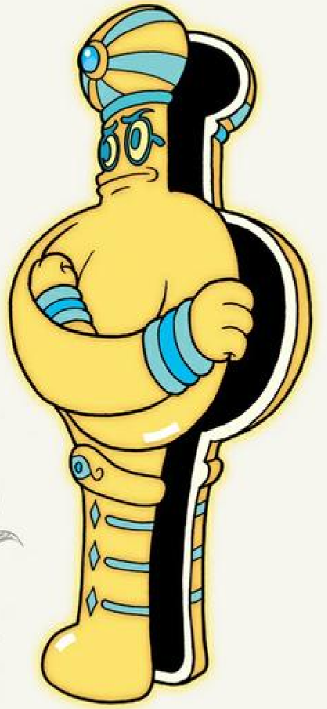
Blade or torch on a stick. Has full freedom of movement with no forcefield needed.

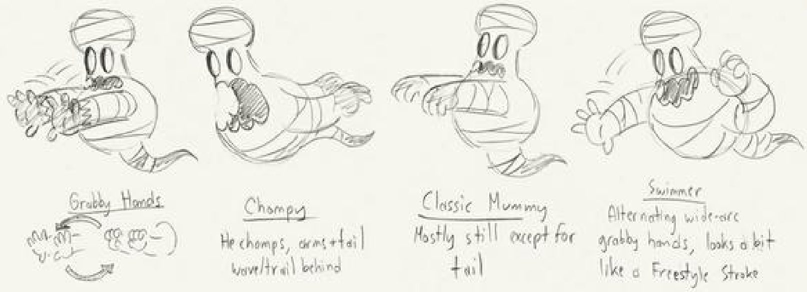
stick pokes through slit in floor or ceiling

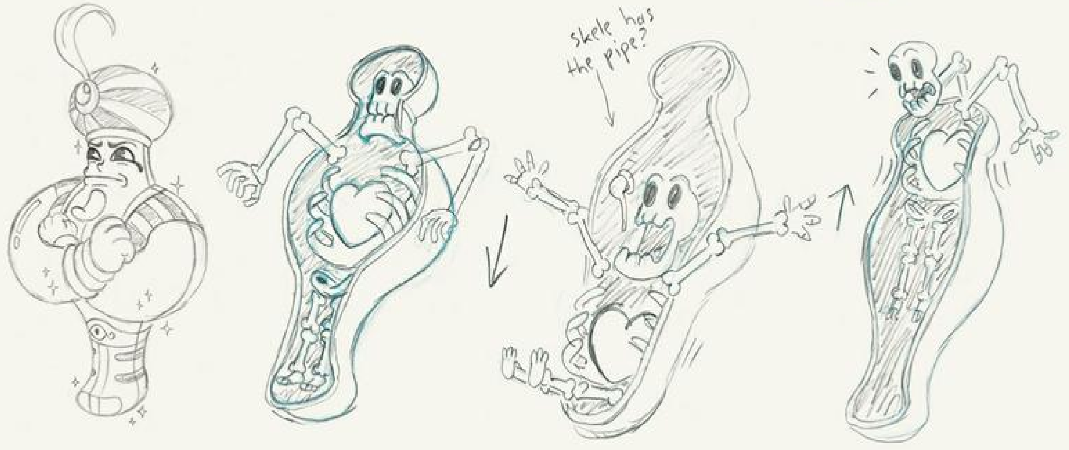
Djimmi's gameplay design was worked on throughout almost the entirety of *Cuphead*'s development. Djimmi is the only boss in the entire game with five unique phases, each with multiple attacks, obstacles, and their own intros and outros, which ultimately ended up being a struggle to pace properly. There were just too many ideas that we wanted to pack into his fight. Because the magical genie concept allowed us to morph Djimmi into literally anything we could conceive, his fight became the place we would transplant interesting attack patterns that we couldn't make visually work on any other boss. So as other bosses had their phases tested and removed due to animation limitations, we'd move any of the ones we just couldn't let go of over to Djimmi. Eventually he became packed with so many designs, we had to start combining them together to maintain our "beatable in under two minutes" rule. Those phase intro animation times really add up!

For each of the variant phases, we wanted to retain key elements of Djimmi: his turban and his face. Because so many forms create a lot of visual hazards on screen, we wanted






Grabby Hands
Chompy
He chomps, arms+tail wave/trail behind
Classic Mummy
Mostly still except for tail
Swimmer
Alternating wide-arc grabby hands, looks a bit like a Freestyle Stroke

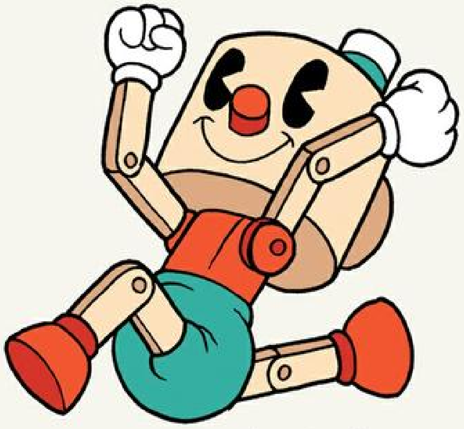

skele has the pipe?

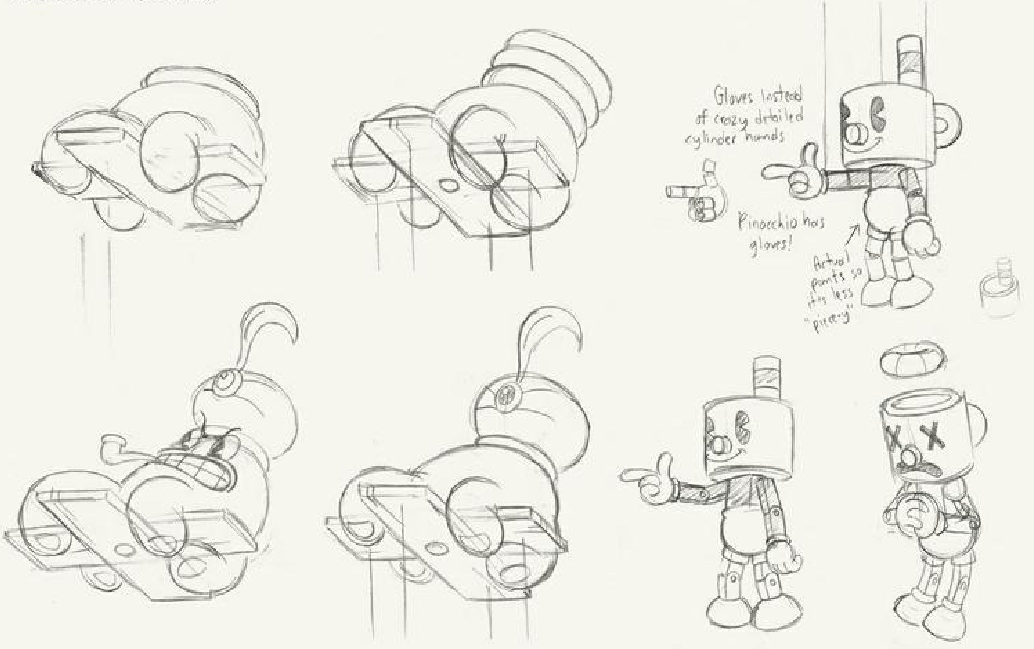
to ensure that the player had the stability of knowing that the genie's face would consistently be a target. So even when we basically removed him from the screen during the pillar trap section, the player could instantly understand what to do and target the faces to accomplish their survival goal. People tend to focus on faces, so it just ended up feeling natural. We strove to carry out this rule of thumb through the rest of the game.

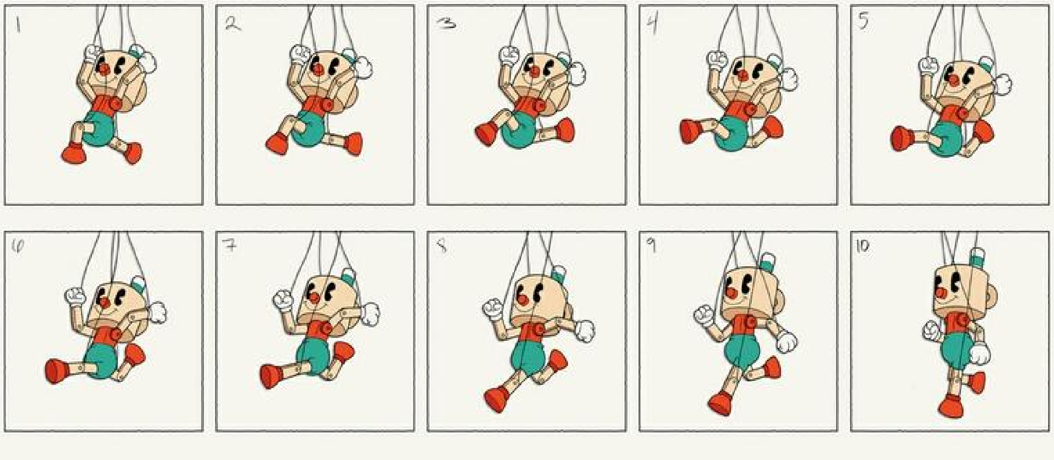
We studied a variety of classic animated films, both specifically for genie concepts, like in ComiColor's *Aladdin and the Wonderful Lamp* and Popeye's *Ali Baba's Forty Thieves*, and general magical beings in other cartoon shorts. The sarcophagus phase of the fight heavily references animation from the fighting game character Anakaris from Capcom's *Darkstalkers* series, a favorite of ours due to his extreme squashing and stretching antics.

“That beating was for free— no strings attached!”

Facing an evil or shadow mirror of the hero is a classic trope seen in games like *Zelda II, Castlevania: Symphony of the Night,* and *Radiant Silvergun*, and we wanted to put our own spin on it. We initially envisioned Djimmi scanning the player characters and duplicating or stealing their powers, but animator Jake Clark came up with the idea of the genie pulling the strings of a dastardly wooden marionette and we ran with it. Affectionately dubbed “Cuppet,” his physical representation was meant to model the halfway point between the protagonists, with Cuphead’s small nose and Mugman’s straight straw.




Gloves instead of crazy detailed cylinder hands
Pinocchio has gloves!
Actual joints so it's less "piney"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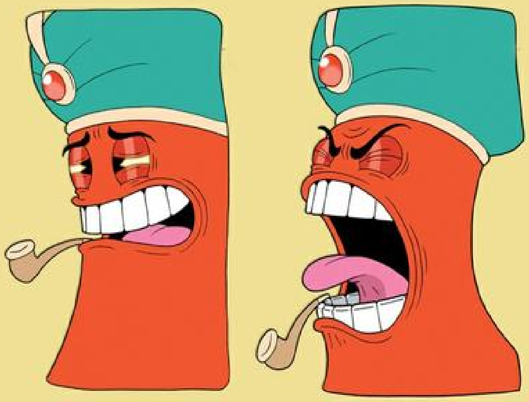
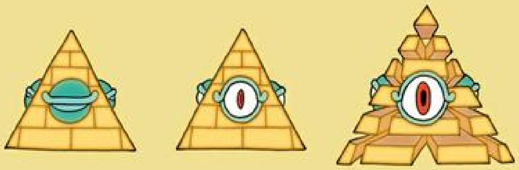
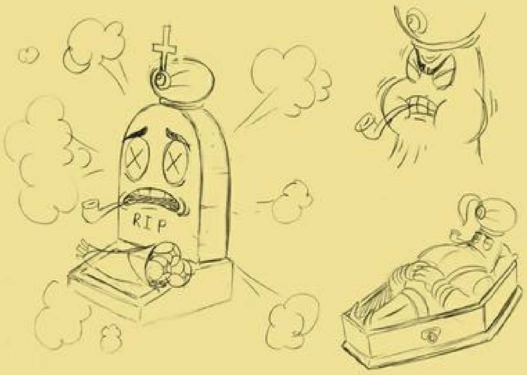
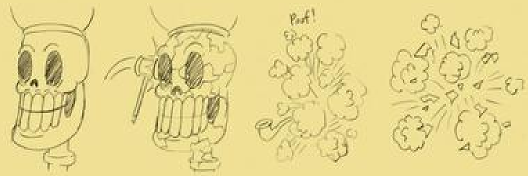
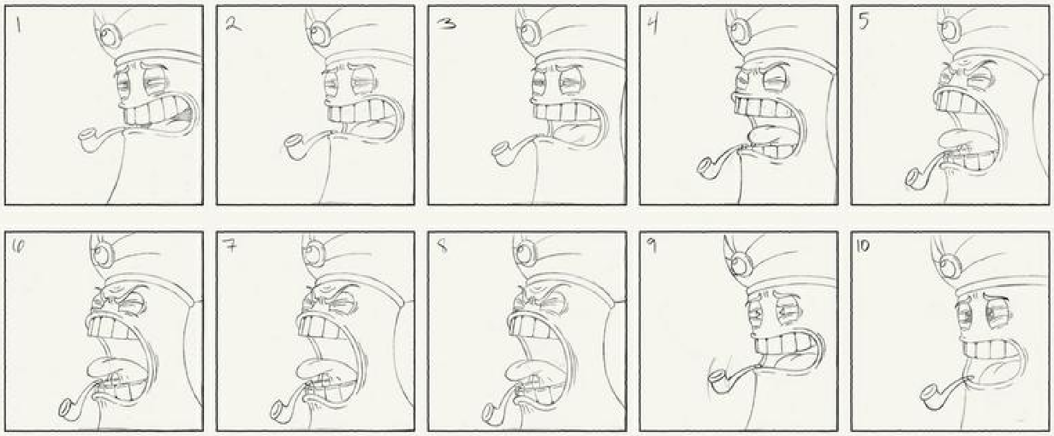


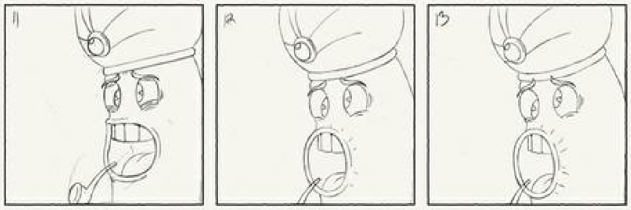
Since a number of the phases of Djimmi have him in completely different forms other than his standard body representation, we wanted his final phase to allow us to really put his personality on display in a big way. The giant face puts his expressions front and center and ends the fight with a bang. As the fight progresses, the intensity amps up and, consequently, we wanted the play space of the final phase to feel very claustrophobic. We used Djimmi's giant waving hands to cover the screen and panic the player, even though there were few actual hazards during the transition. Of the obstacles, the pyramids were adorned with eyes because so many 1930s cartoons added eyes to anthropomorphize objects—we promise we have no ties to the Illuminati!



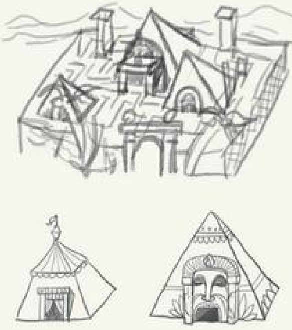


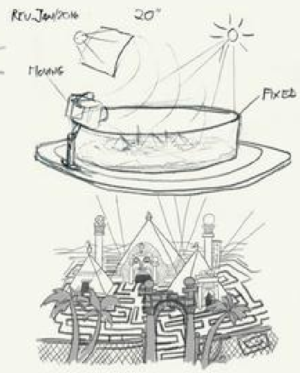


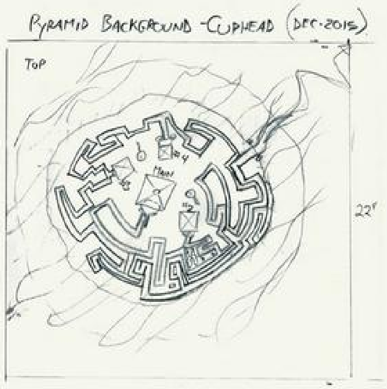




Many classic rubber-hose cartoons would use the trope of a smoking character always hacking and coughing. We thought it would be a fun nod to use it for Djimmi's death animation cycle, as many of the characters in Cuphead *succumb to their own vices.*





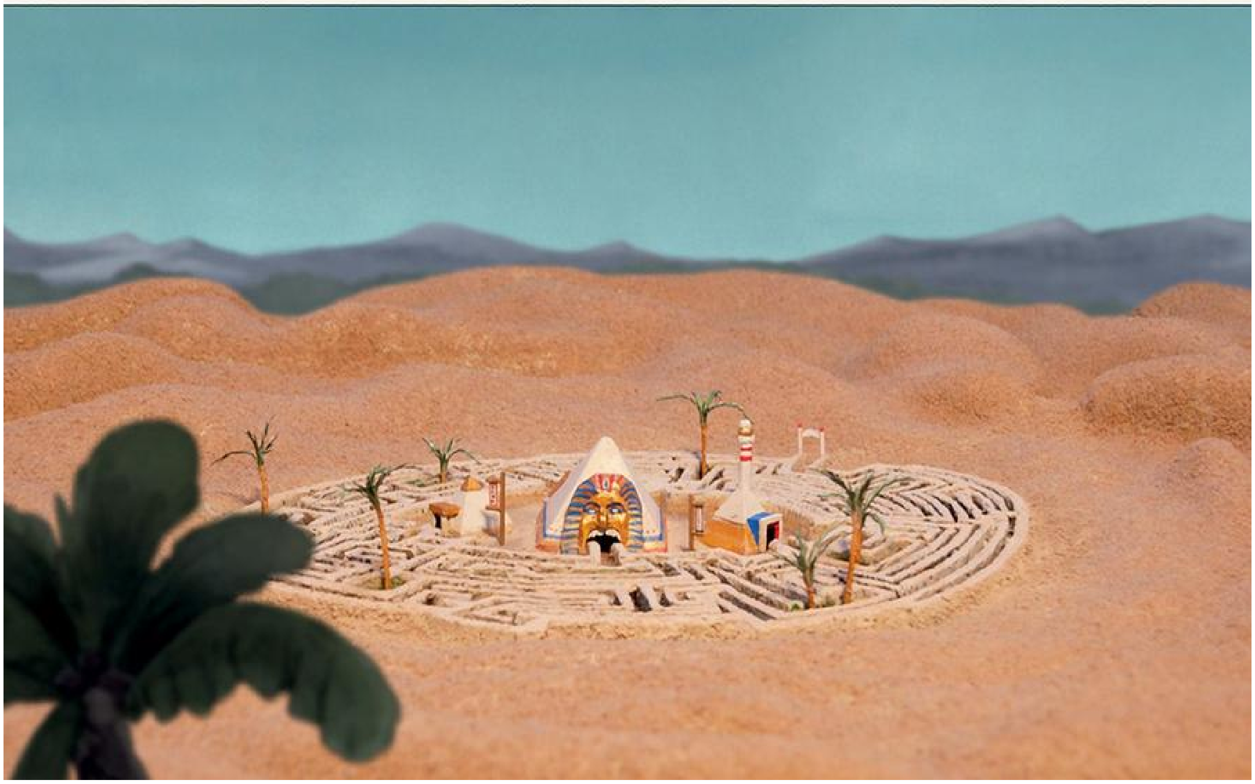


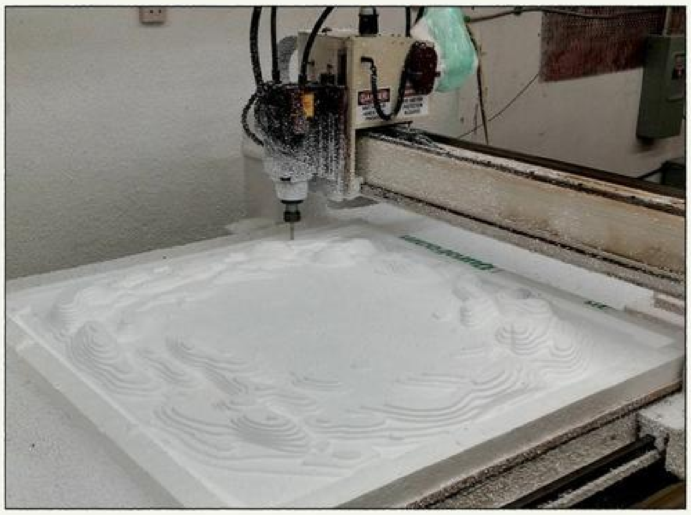
Pyramid Peril Background

IN THE 30s, FLEISCHER STUDIOS would occasionally use fully modeled sculptures filmed by their unique Stereoscopic "Setback" camera system for their three-dimensional backgrounds. To capture this effect properly, we had to build physical sculptures of our own and photograph them the way they did back then, with a little help from modern technology.

Djimmi's Egyptian-themed background was constructed by our physical designer Ali Morbi with assistance from background painter Caitlin Russell. The central maze, designed to actually be solvable, was hand carved into two-inch-thick construction foam, and the ground around it was molded out of clay. Unfortunately, the original clay mold shrunk and cracked, peeling off of the foam and becoming unusable. The second attempt at making smooth rolling sand dunes was done by milling the sculpt out of a block of foam with a CNC machine. To achieve the proper texture and specularity of the desert, Ali then sprayed the sculpt with watered down wood glue and sifted real sand across the surface.

The central pyramids were hand sculpted and painted and the surrounding palm trees were constructed out of paper and painted toothpicks. Ali then created a custom rotation rig and a DIY blue screen to setup and photograph the sculpture 288 times over 360 degrees. Those photographs were then composited onto the sky painting and played back in series in the game to create the perception of flying above the stage.

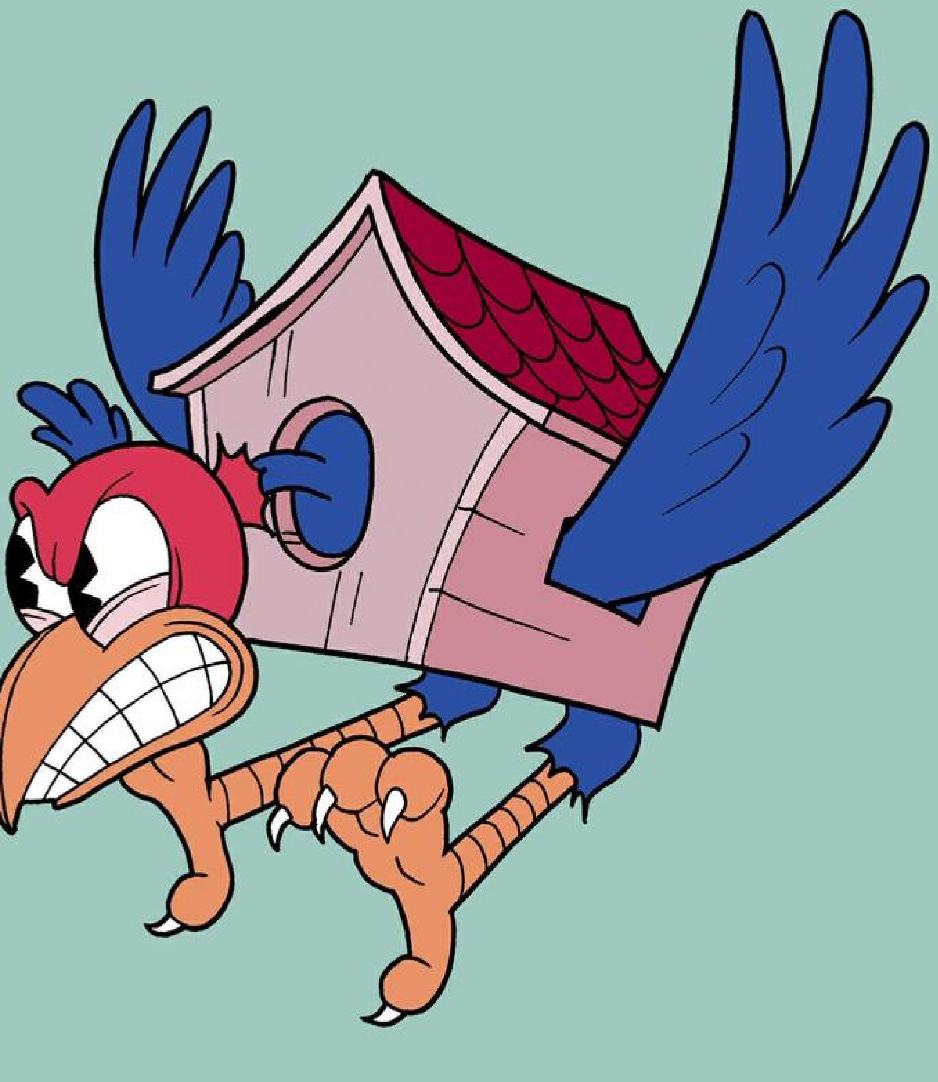


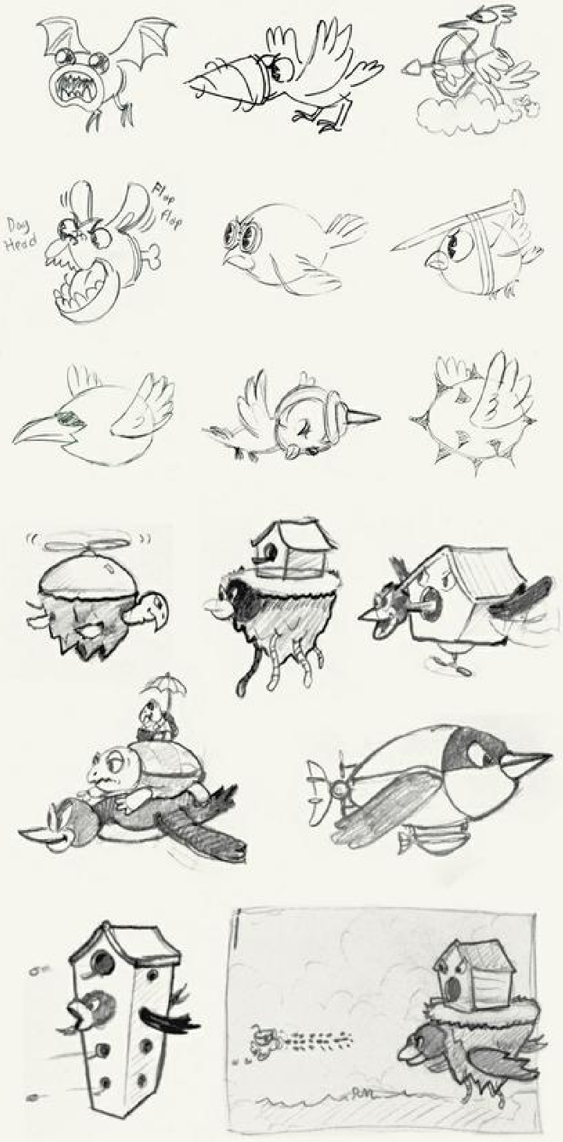


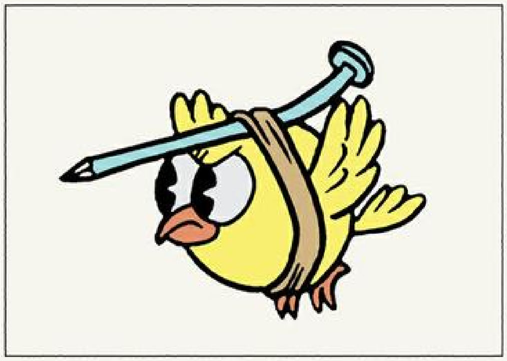
These photographs showcase the month-long process of constructing, milling, sculpting, detailing, rigging, and photographing the land mass used for the background of Pyramid Peril. The final sculpture measured about three feet in diameter, not counting camera rig, and was originally photographed on Ali's living room floor.

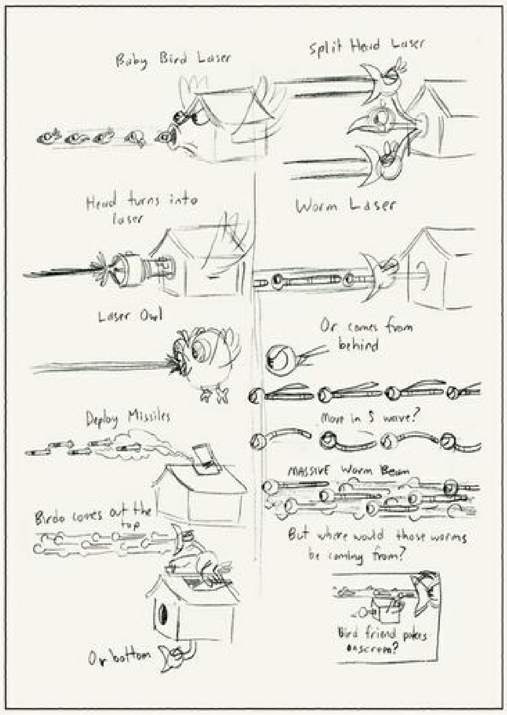
Wally Warbles
in
"AVIARY ACTION"

TAKING TO THE SKIES TO FACE the feathered furioso, Cuphead's little plane has quite the challenge against this bird that won't quit, even when stretchered away. Wally Warbles was the first flying boss that we completed animation on and originally was set to be encountered earlier in the game. You can see the roots of our "shmup" gameplay design from the nail-strapped little birdie enemies to the chaotic mad flap feather attack. Wally's midfight apparent death and subsequent rebirth became a punchline we'd revisit with other bosses.



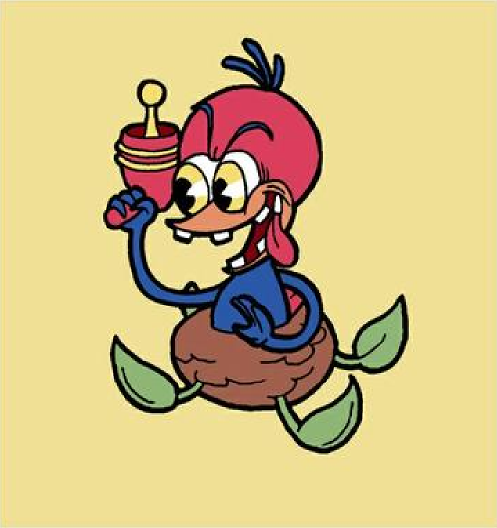

Day Head
Flop flop

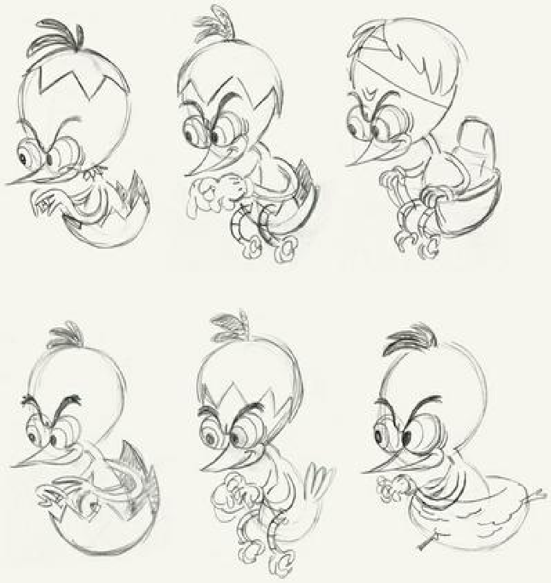


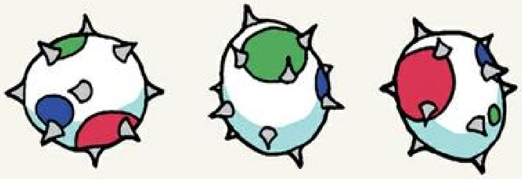

Baby Bird Laser
Split Head Laser
Head turns into laser
Worm Laser
Laser Owl
Or comes from behind
Deploy Missiles
Move in S wave?
MASSIVE Worm Beam
Birdo comes out the top
But where would those worms be coming from?
Bird friend pokes onscreen?
Or bottom

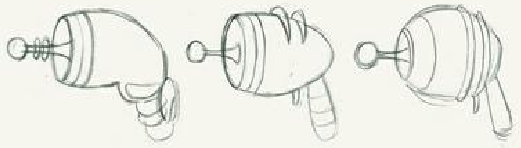
A confluence of rubber-hose animation design sensibilities, the visual pun of Wally Warbles's bird house came early in the development of *Cuphead*. So many of the gags in Fleischer's cartoons were just taking what something was named and presenting it as literally as possible. Animator Jake Clark took Wally's bird-in-house birdhouse through a number of conceptual possibilities and we used characters like the monstrous bird in *Popeye the Sailor Man Meets Sinbad the Sailor* and Woody Woodpecker to refine his expressions and form. Wally, known internally as "the Bird" throughout production, eventually got his name by finding the best W.W. name we could muster as an homage to the aforementioned Woody Woodpecker.

Oftentimes, we would look to Japanese flying shooter games to be inspired when coming up with attacks. Lots of the more interesting hazard patterns and enemy motions would inspire us to create more wacky visuals to apply to them.



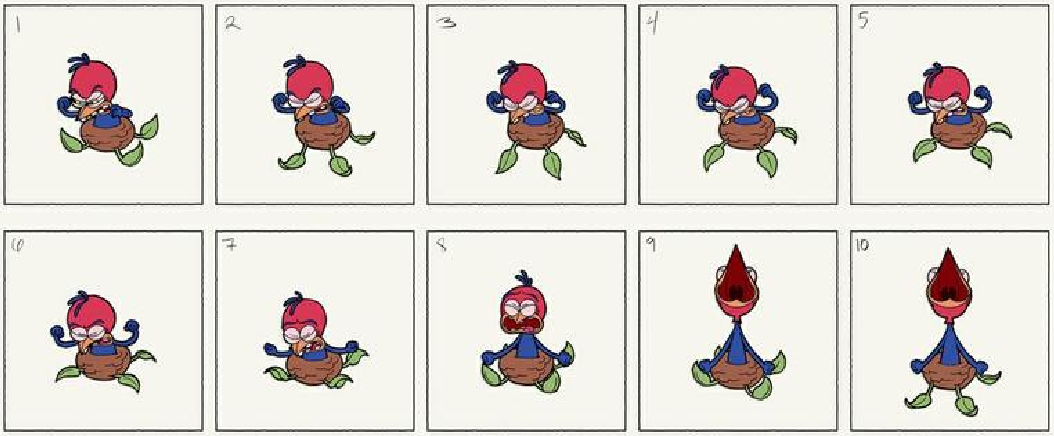


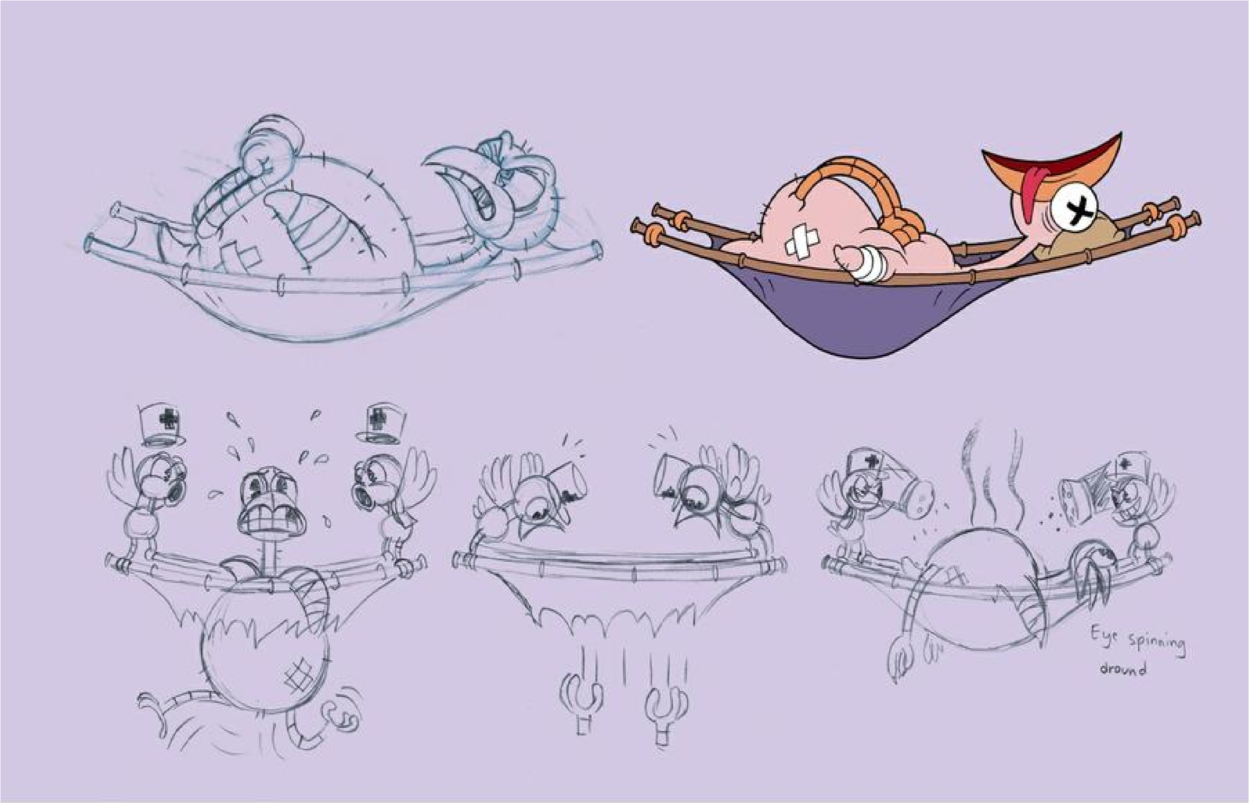


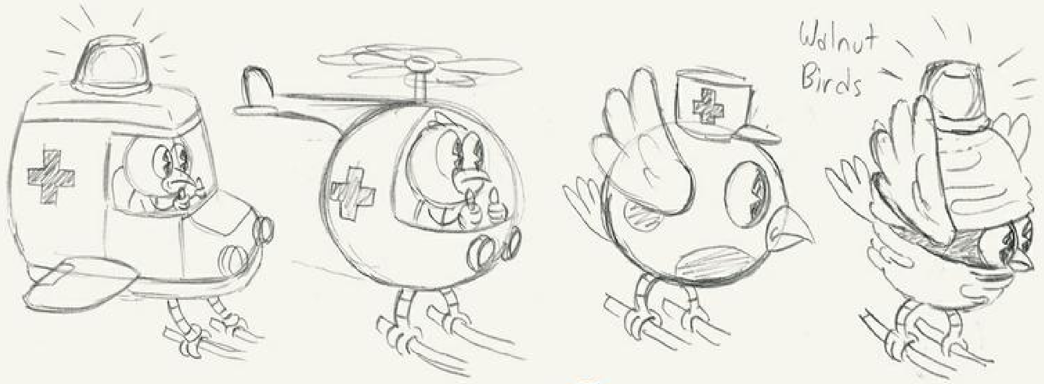


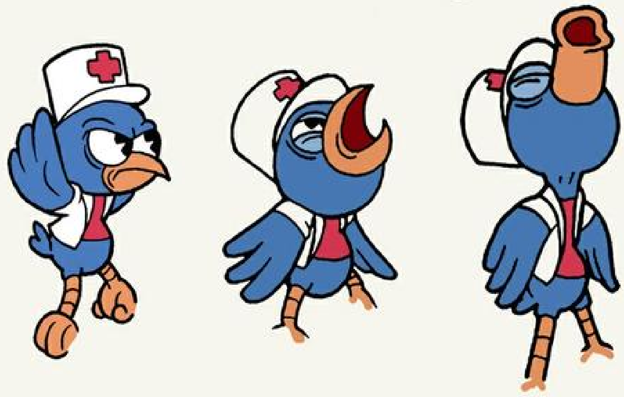
Willy Warbles

BACK BEFORE WE HAD EVEN STARTED core programming on *Cuphead*, the absolute first flying boss gameplay design we ever did was a Flash prototype of a wizard with rotating energy balls around him that would pulse outwards while he did figure eights around the screen. That boss pattern would eventually become phase two of Aviary Action against Willy Warbles. Using Wally's son for this fight allowed us to do both an homage to the cuddlier version of Woody Woodpecker with Wally, as well as a nod to the more classic, teeth-out, zany version of the character. Other references in this scene are to 90s video game animation pioneer *Earthworm Jim*, with Willy's laser gun, and platforming masterpiece *Yoshi's Island*, with his surrounding eggs.



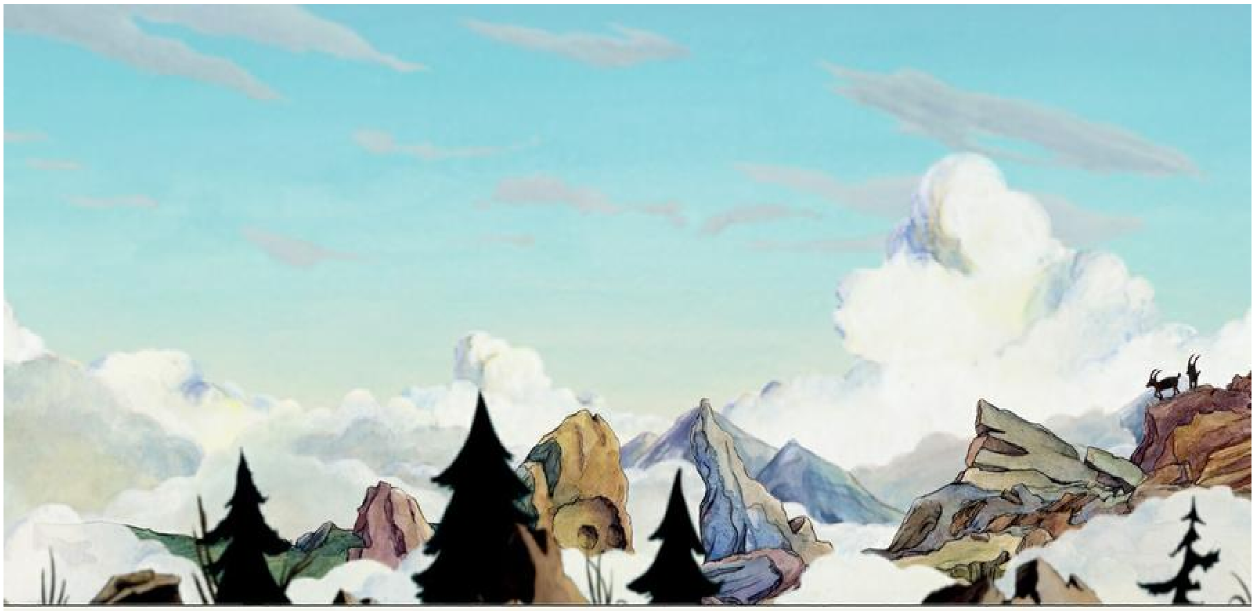


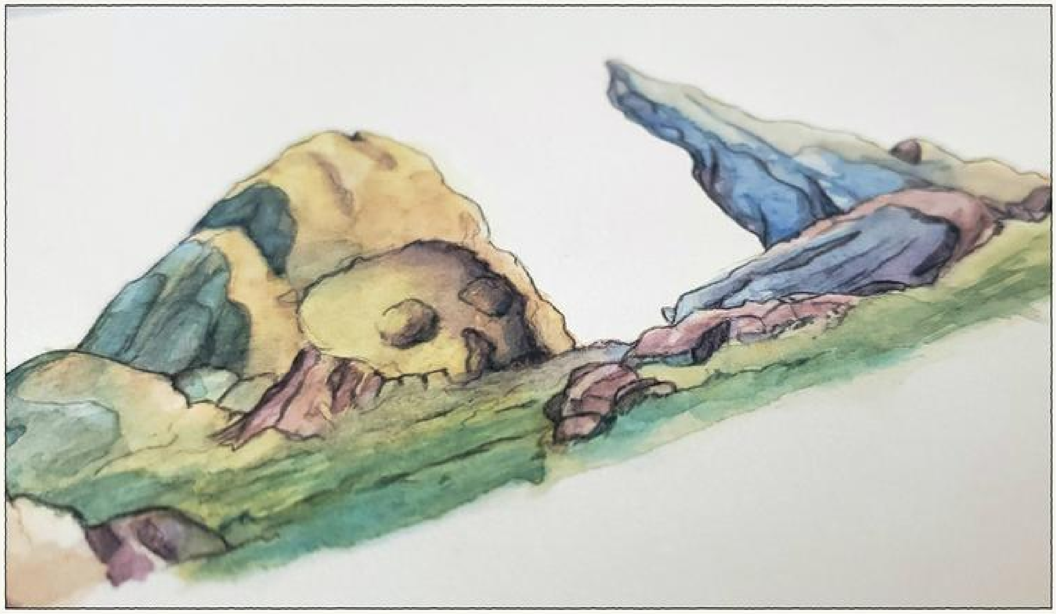


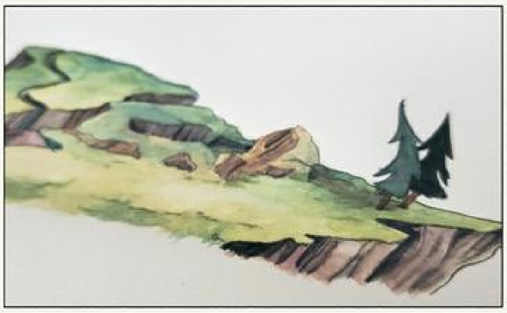


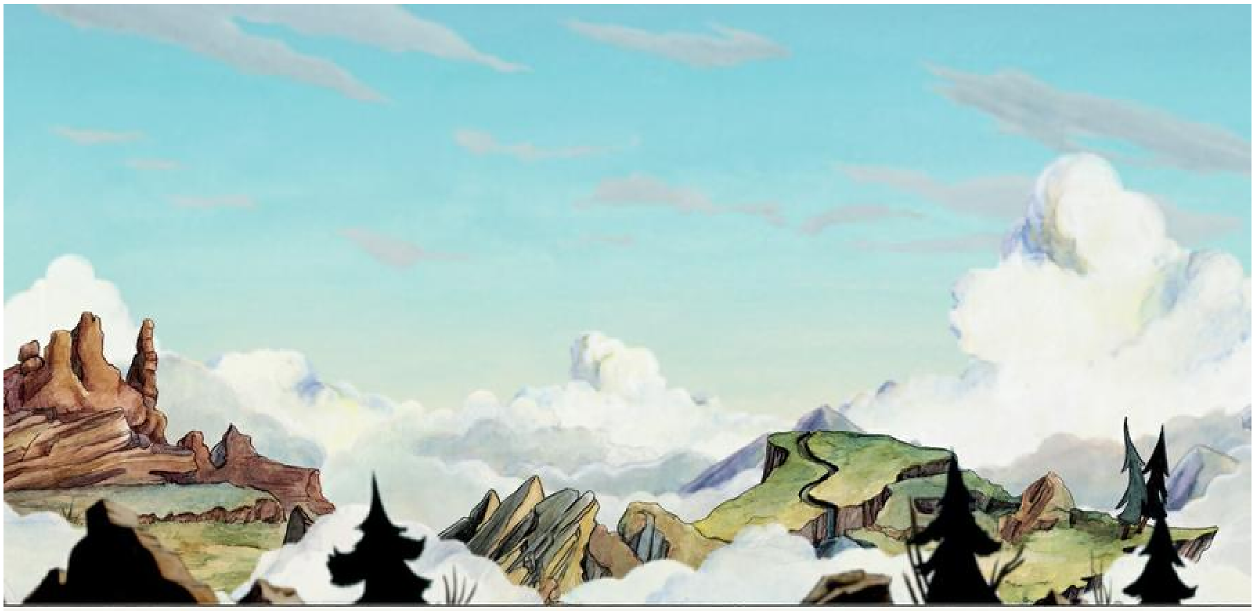
"Even without my feathers, you're in for stormy weather!"

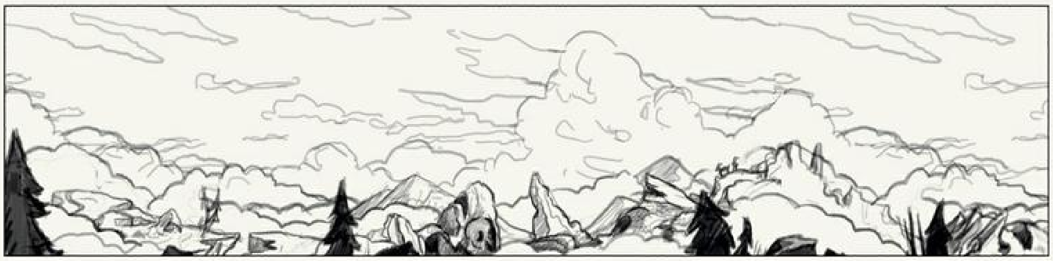
The original concept for the Medic Birds was to have them concerned for Wally's well-being, but we decided to make it a bit more sinister, with them actually prepping the big bird to be cooked upon his defeat. If it makes one not sure whether to laugh or recoil in horror, that usually means we're hitting the right note.









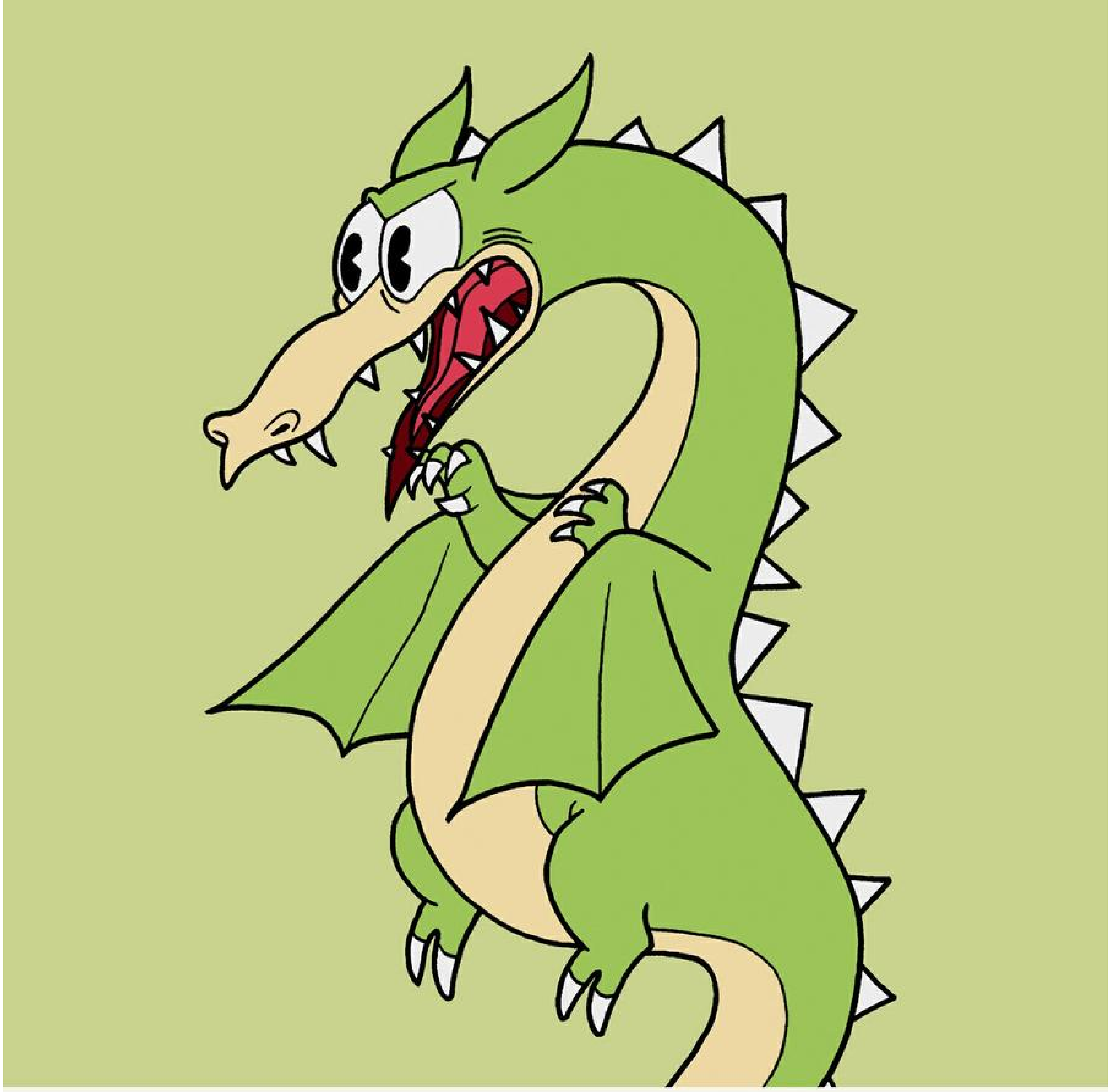


Aviary Action Background

ALONG WITH THE ROOT PACK, Ribby & Croaks, and the original Goopy Le Grande backgrounds, Wally's background painting was one of the first to be completed. This one posed new challenges for us, as it was the first looping background that we tackled, so background painter Caitlin Russell delved deep into the classic cartoons to study both the methods that they used to achieve their infinitely looping backgrounds and the brush and color techniques used to bring them to life. Studying the landscapes of *Popeye the Sailor Man Meets Sinbad the Sailor, Donald's Tire Trouble*, and the Fleischer Betty Boop classic, *The Old Man of the Mountain*, we took special notice of their rock formations and how light hit them.

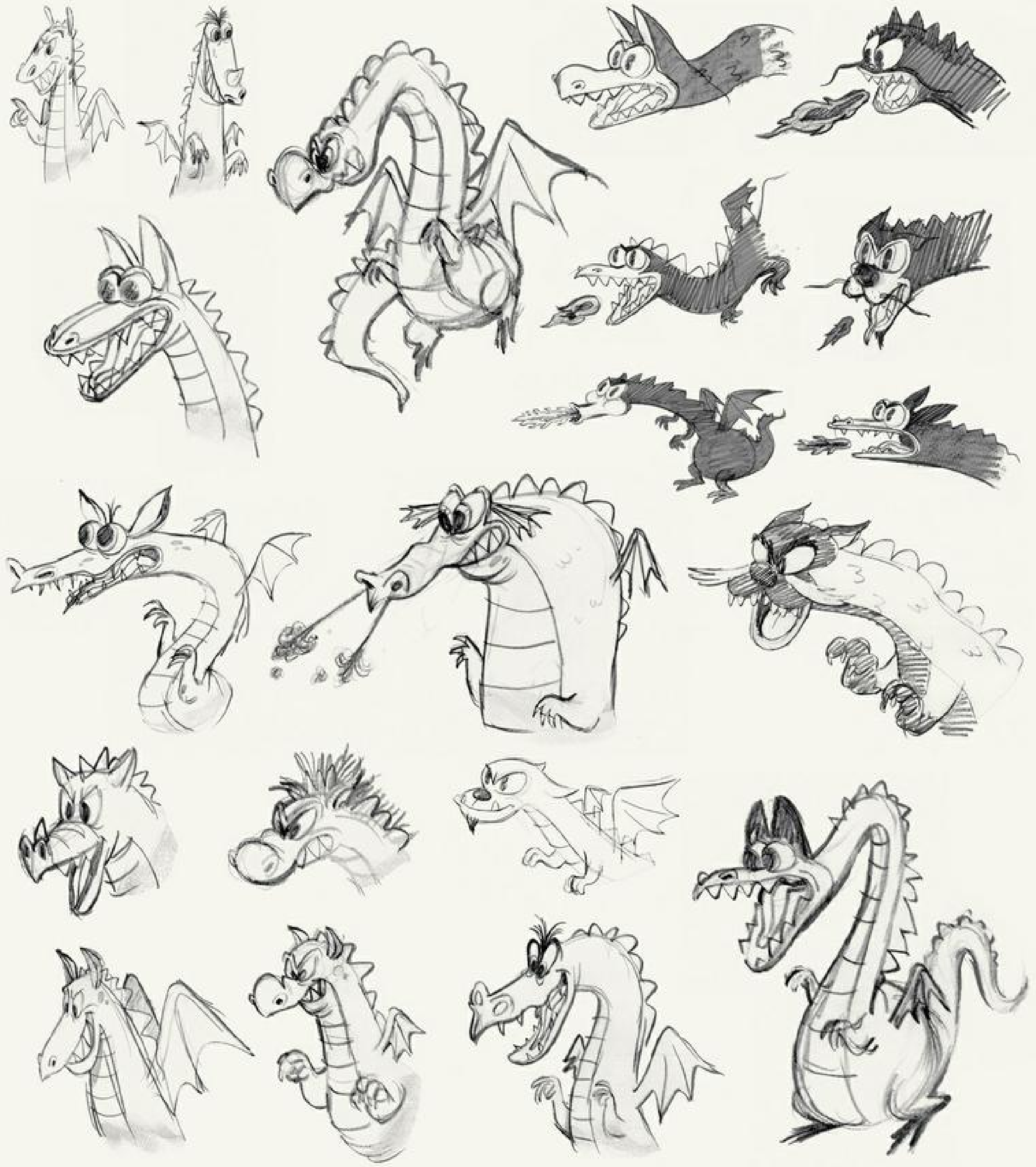
Another challenge with this background was aptly communicating the height and speed befitting of an aerial fight. We didn't want to just have clouds whipping by, so we had to play with perspective a bit to give the ground interesting formations while still maintaining a planar view. To increase the sense of depth, we utilized up to twelve layers of individual parallax, cycling in parts procedurally to keep the background remixed and fresh.

With so many moving parts, we tried to sneak in as many Easter eggs as we could, without making the repeating elements obvious. If you look closely, you can see a skull etched into the side of a rock formation, a reference to the Dr. Wily stages in the *Mega Man* series. We also put a couple of goats in the distance atop a high mountain, a foreshadowing of the goat enemies that Cuphead would end up facing in the mountainous Isle Three Rugged Ridge level, here observable from all the way back in Isle Two.



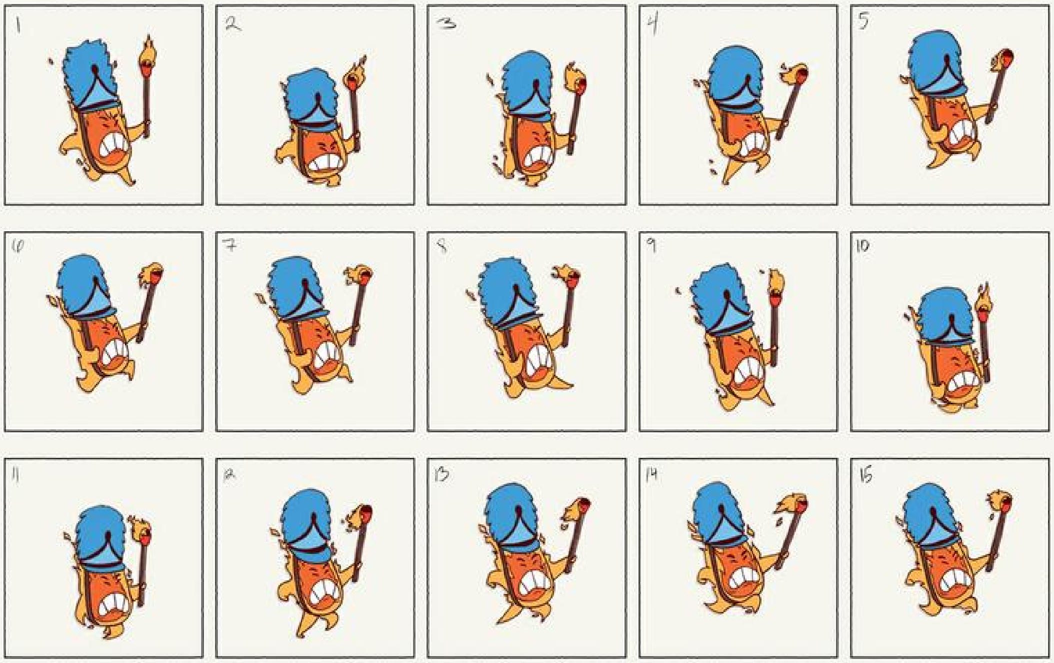
Grim Matchstick
in
"FIERY FROLIC"

WHAT EPIC ADVENTURE WOULD BE COMPLETE without a towering fire-breathing dragon putting the hero's ultimate resolve to the test? With so many cartoons and video games containing dragons of different shapes and sizes, we created Grim Matchstick, named after the legendary lead animator of *Snow White* Grim Natwick, as a synthesis of all of our favorite dragon inspirations. A frantic cacophony of fire and action, Grim was meant to be the capstone of Inkwell Isle Two—a visual and gameplay punch and a signal of the challenges to come.



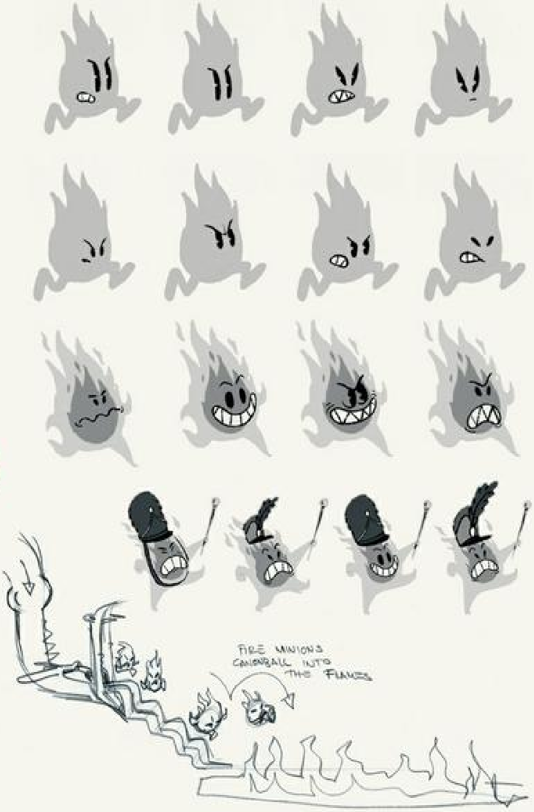
Through the concept phase, animator Hanna Abi-Hanna initially explored more nontraditional dragon styles for Grim. We tried takes on feline, alligator, and snake dragons, looking for our own unique spin on the genre classic, but they never felt right. Eventually, we decided to deliver a classic dragon with a different personality. Quirky and goofy, our dragon would be more like a giant, overly playful dog, just as likely to hurt you while trying to play as he would be apologetic after his folly. Tweaking the formula further, we gave Grim lasers from his eyes and a marching band of fire people living in his stomach. Finally, we gave Grim stubby little arms and legs after loving an unusual dragon depiction in *Felix the Cat's Woos Whoopee.*

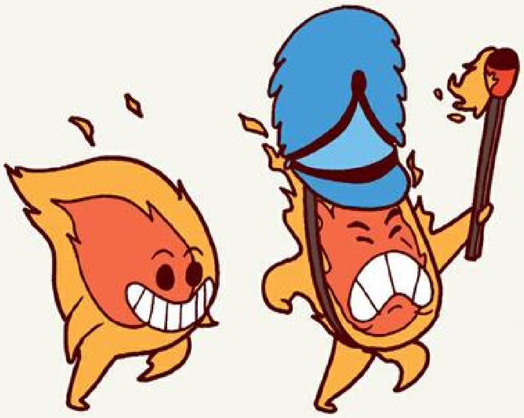
For gameplay design, we wanted to create a boss wherein the player would be constantly jumping from platform to platform, having to juggle dodging the attacks from the boss while the ground was moving out from underneath them. Our key inspirations for this intense style of encounter were Battleship Dodriguez, the missile hopping *Contra III* boss, and Mecha Dragon, the block-hopping *Mega Man 2* boss.

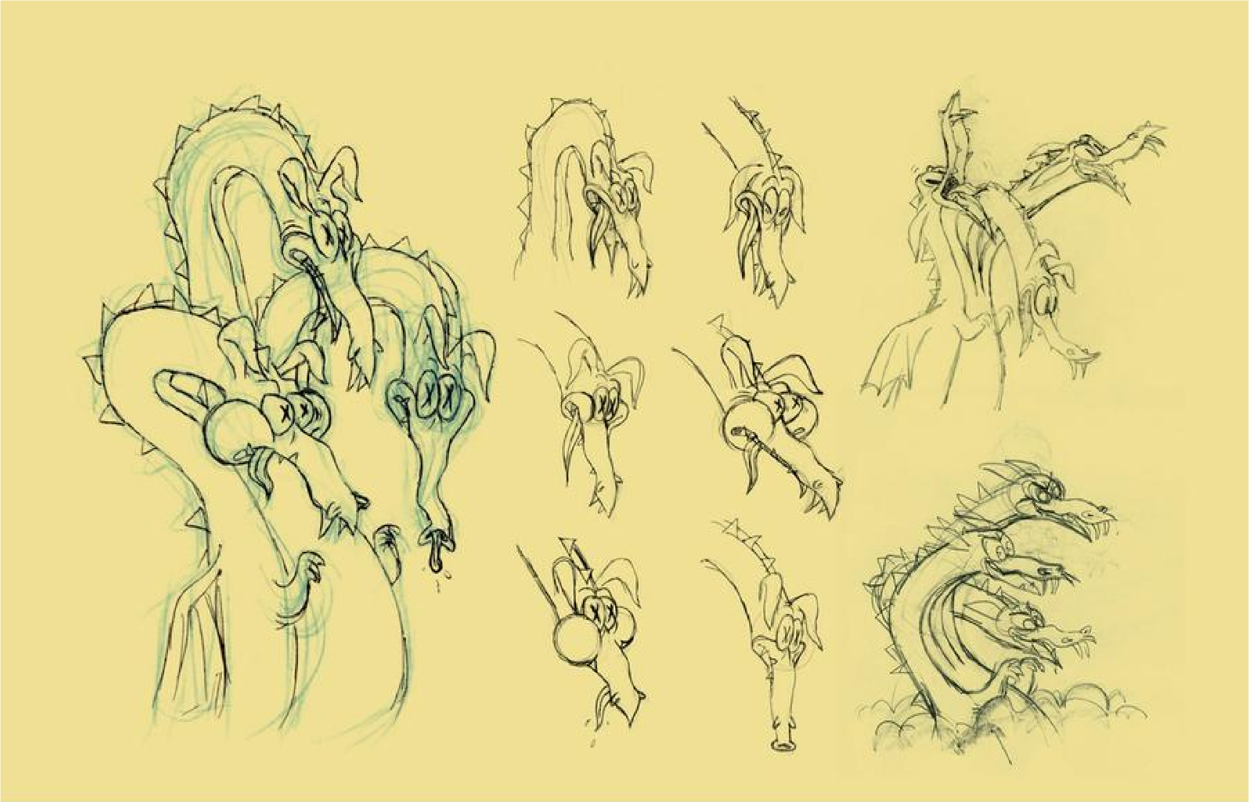


Marching Minions

ONE OF THE EARLY CONCEPTS for Grim Matchstick was to have a fully musically timed theme to the entire fight, with enemies, attacks, and hazards all choreographed to the jazz bop of the stage. While that idea proved to be too technologically difficult to complete for our first game, the "marching band of living fire creatures" concept created during that exploration sparked the idea for Grim's phase two critters. From the drum major's shako to the devious grins on the corps, we looked to cartoons like *Mickey's Fire Brigade* to find ways to imbue distinct personalities to the living fire minions.

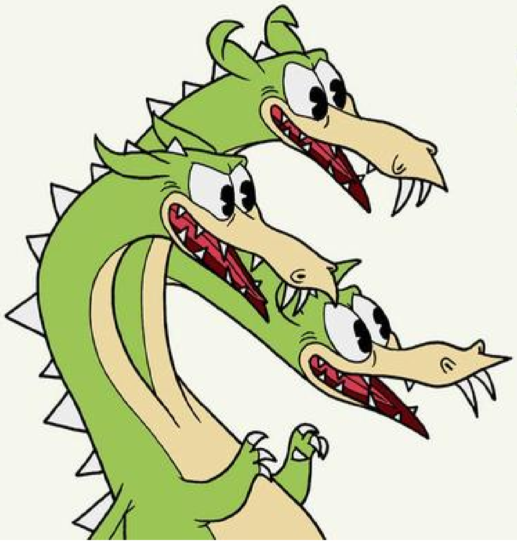

FIRE MINIONS CANNONBALL INTO THE FLAMES

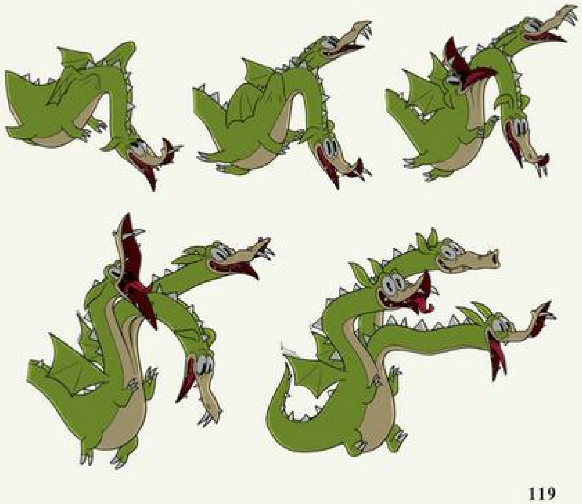


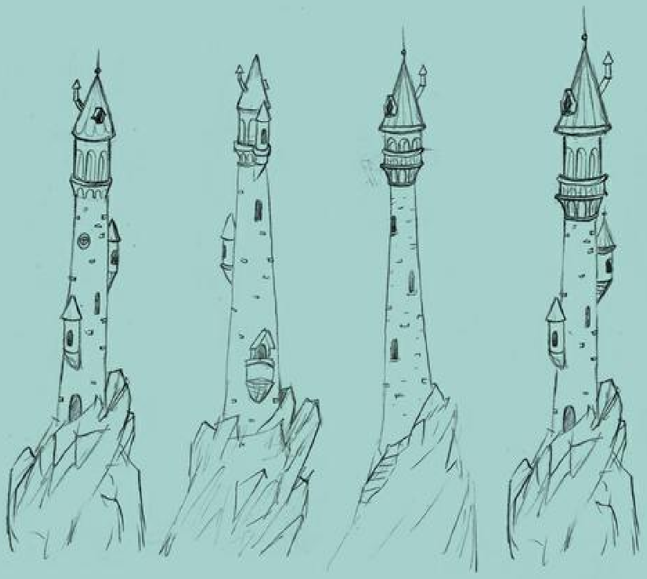


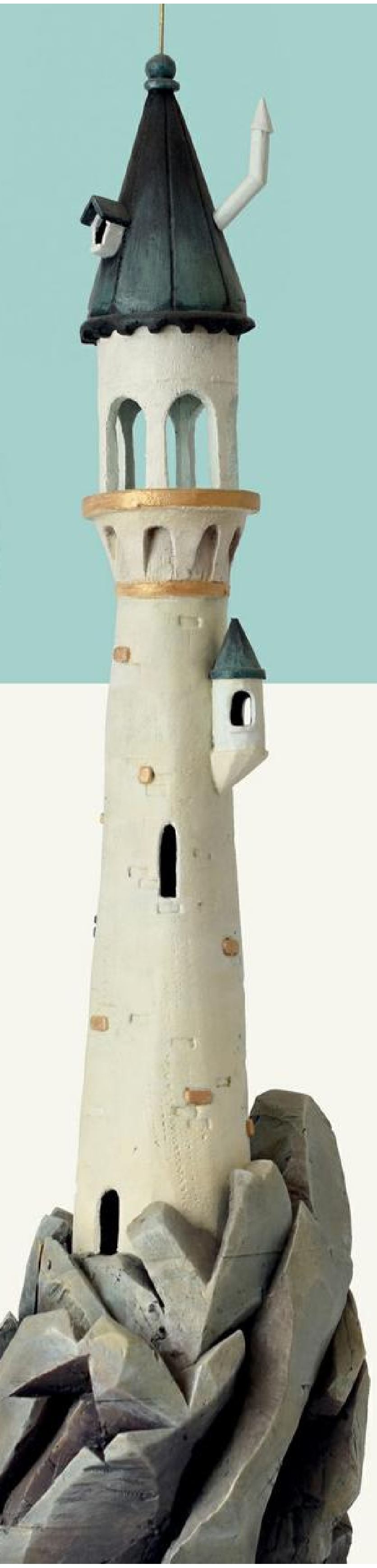
"One . . . two . . . three!
You'd b-b-b-etter flee!"

During the development of *Cuphead*, the bosses weren't completed in order, and oftentimes, the animation for different phases would be completed years apart. The three-headed form of Grim Matchstick, known to the team internally as the "Hydra," became a challenge to ourselves as we became more experienced in our tools and techniques. Wanting to imbue unique personality into each head, the Hydra is actually composed of three individual head layers, looped and procedurally timed to deliver attacks while never falling out of sequence with each other. Additionally, the growing storm that culminates in a torrent of showers in phase three is composed of dozens of images of uniquely hand-animated raindrops. So, while Grim's Hydra is often seen as one of the most difficult bosses in the game to defeat, know that he was also one of the most difficult bosses to bring to life!









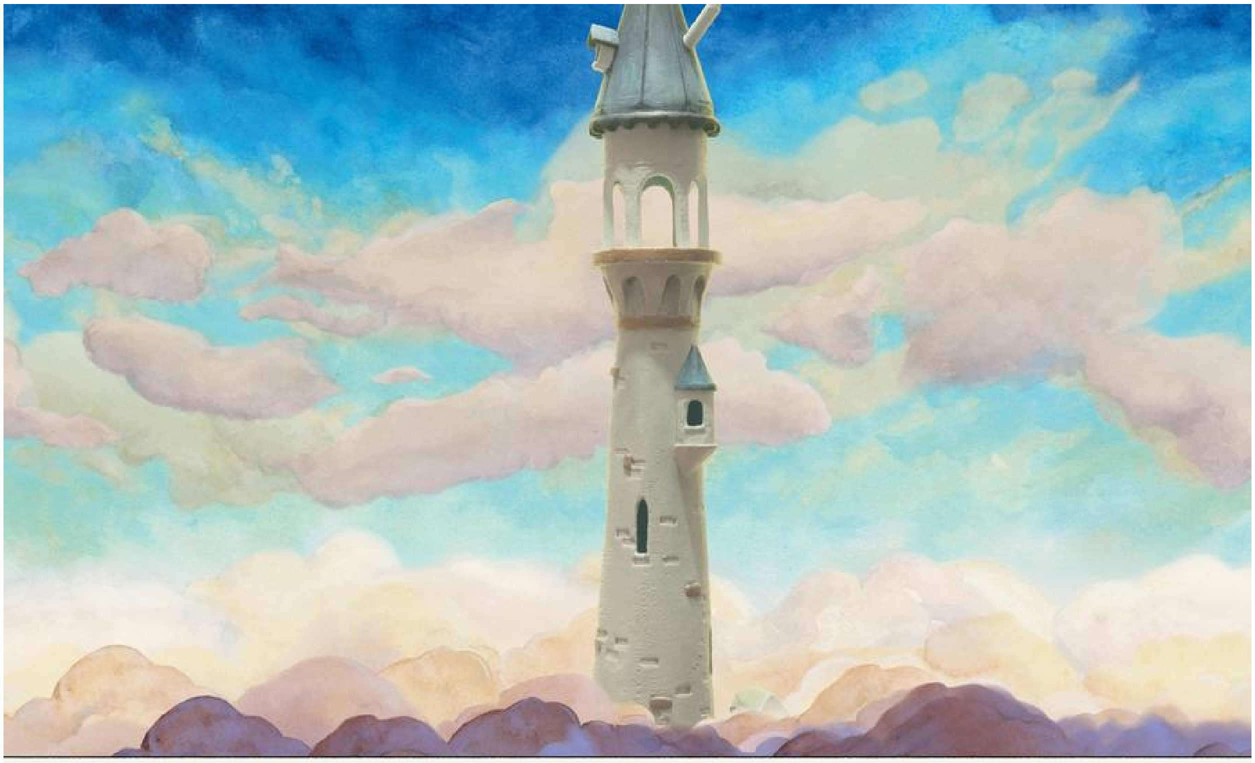
Fiery Frolic Background

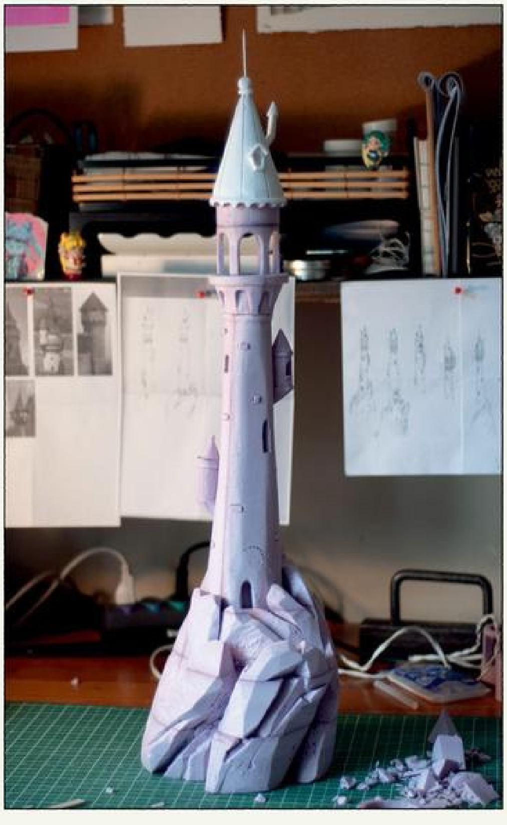
EARLY ON IN THE DEVELOPMENT of Grim Matchstick's stage, the player was going to be fighting the dragon while jumping and dodging on the broken steps outside an infinitely ascending tower. That concept proved ultimately unworkable for the encounter design that we wanted, but the idea of a towering spire proved perfect for this battle in the clouds.

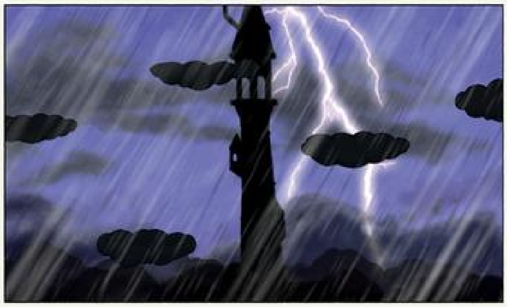
Initially, we planned to model the tower with computer-generated-assets and then hand paint a texture to wrap around it, but it didn't feel era appropriate. Collaborating with physical designer Ali Morbi, we decided to actually sculpt a three-foot scale model of the tower and capture it using as close an approximation of Fleischer's Stereoscopic Photographing technique as we could.

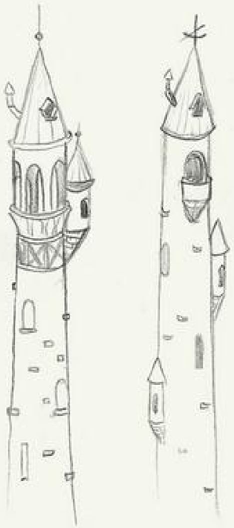
Originally Ali was going to carve the tower out of wood, but it proved to be too impractical. Speaking with set and prop designers for television shows, Ali found out that many detailed props are made out of construction foam, and that proved to be the optimal sculpt material. In the end, our tower was carved out of large sheets of pink EPS insulation foam that you could find at any hardware store, primed and painted to look like stone.

No one on the team had ever captured a physical model for use in a game before, so we initially mocked up the scene using rudimentary 3D modeling software to test how the model and cloud painting parallax would layer and how the spire would need to be lit to fit appropriately in the scene. Finally, Ali built a rudimentary rotating camera rigging and green screen system in his living room to maintain perfect distance from the sculpt and keep the lighting uniform throughout the capture process.









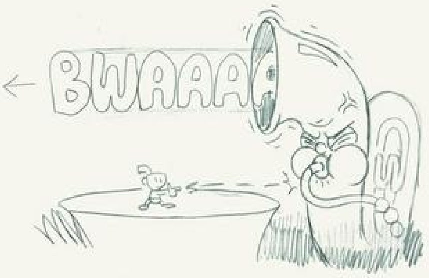
For the visual design of the spire, we referenced the Neuschwanstein Castle in Germany, which is the same castle that the Cinderella Castle is based off of in the Disneyland theme park. We were specifically looking for asymmetrical elements to reduce the uniformity of the silhouette during rotation.

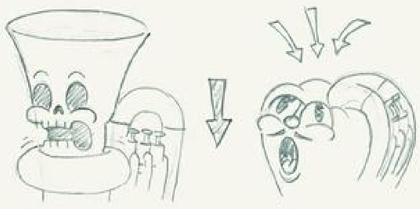
Run & Gun

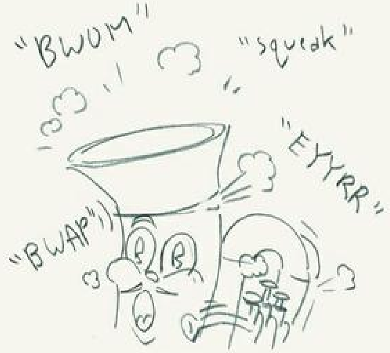
FUNHOUSE FRAZZLE

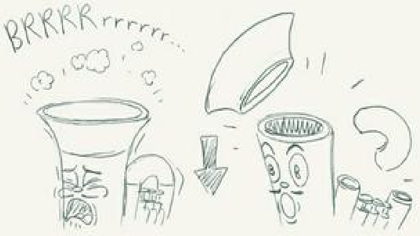
WITH BOTH OUR ART AND DESIGN pipelines in place, and the players having been tested and tutorialized through the first Isle, we were really able to stretch and pull at our gameplay ideas with the run-and-gun stages of Isle Two. Pulling influence from Sega's *Mickey Mouse and the Castle of Illusion*, we wanted to do our own take at a mind-bending and reflex-testing gravity-switching mechanic. Taking that core conceit and mixing it with moving conveyor belts, minibosses, and spinning hazards created a fun romp through a mad house.

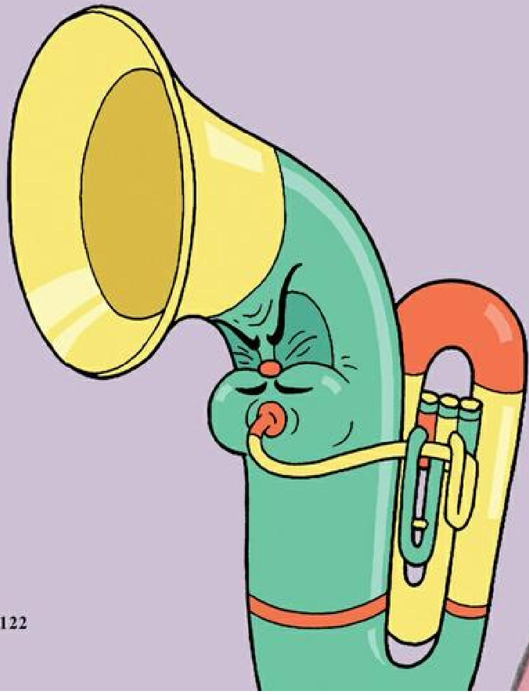
With the gameplay concept fleshed out and the level and encounter design decided, we felt the best representation of this flip of perspective was to dress the level in a funhouse-themed, toy-filled, art-deco-inspired visual motif. We did research across a variety of visual mediums: cartoons, film, and then more commercial applications like physical funhouses, toys, and posters of the era, looking for any art-deco-inspired pieces. From there, we tried to mix that iconography with the bright colors and otherworldly designs of Treasure's 16-bit colorful action games like *Dynamite Headdy*. From bright colors came toy enemies and the rest just fell into place.

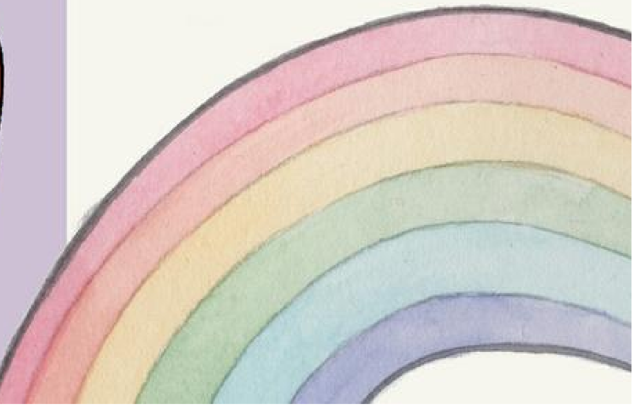


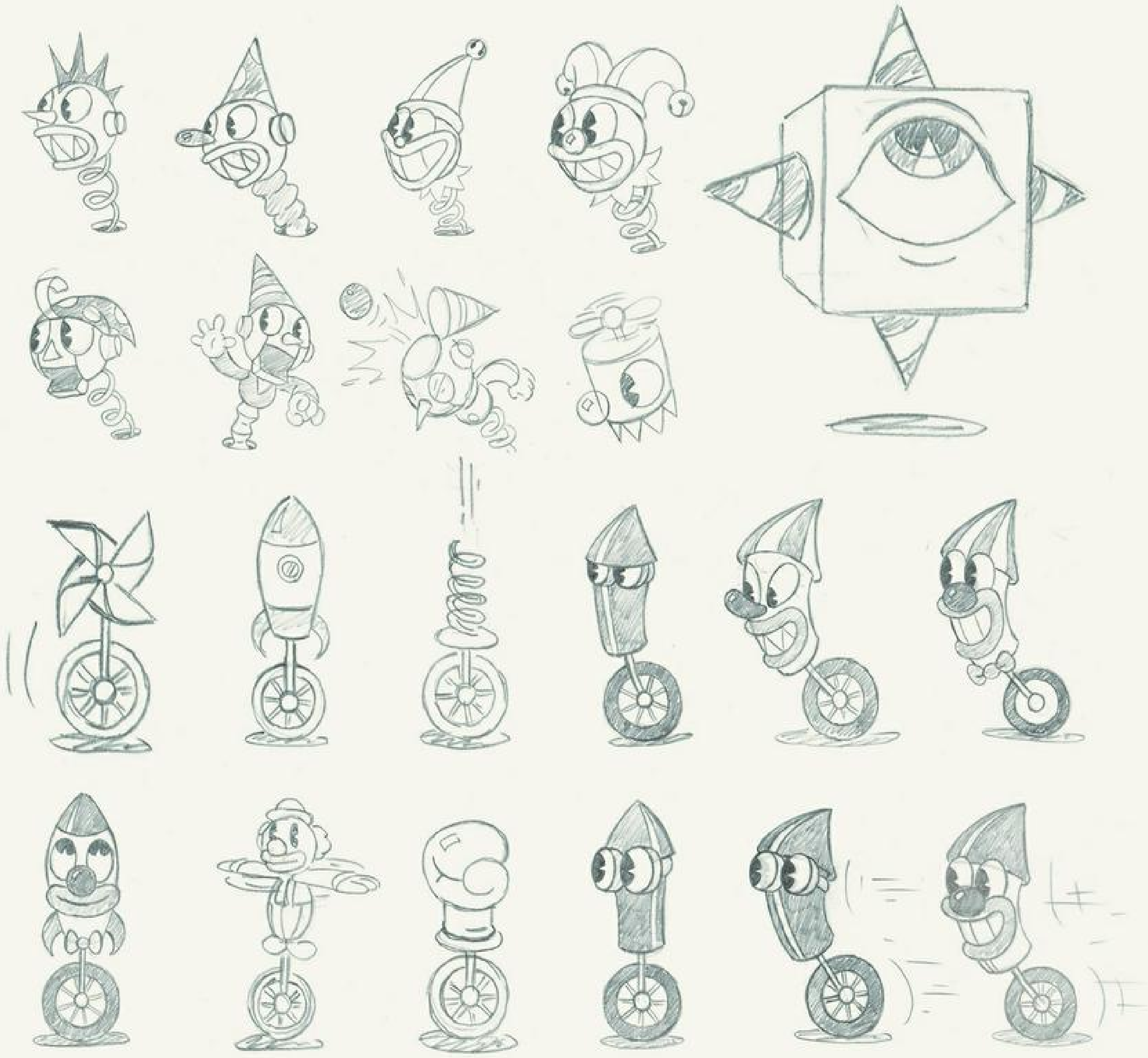


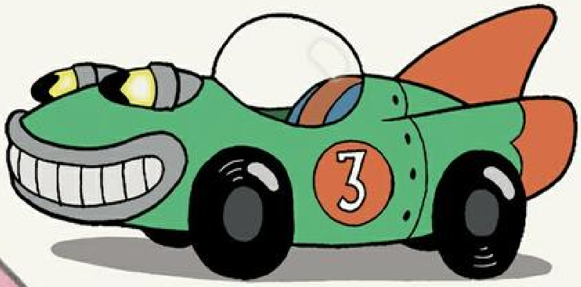



BRRRR rrrrrr...

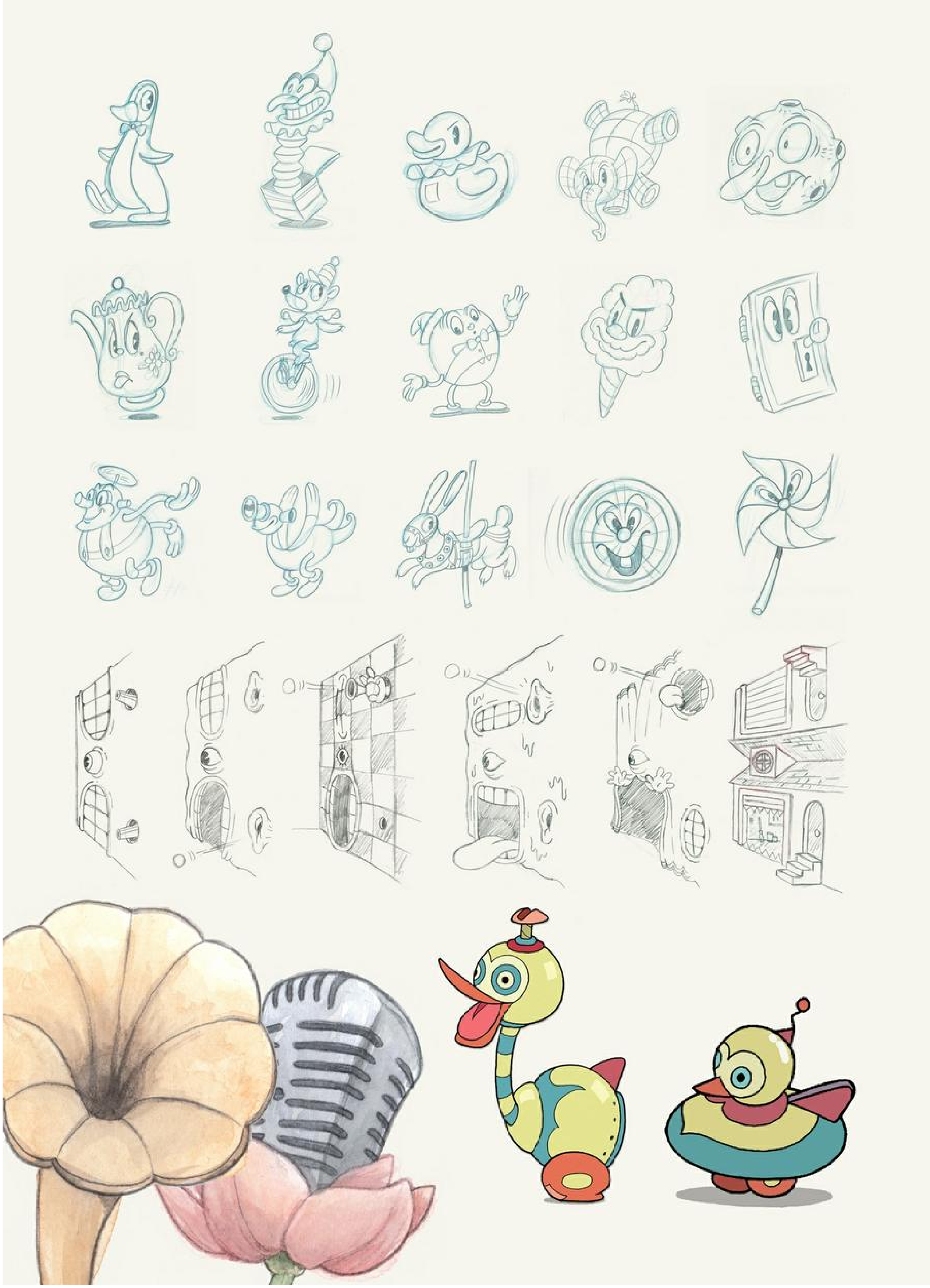


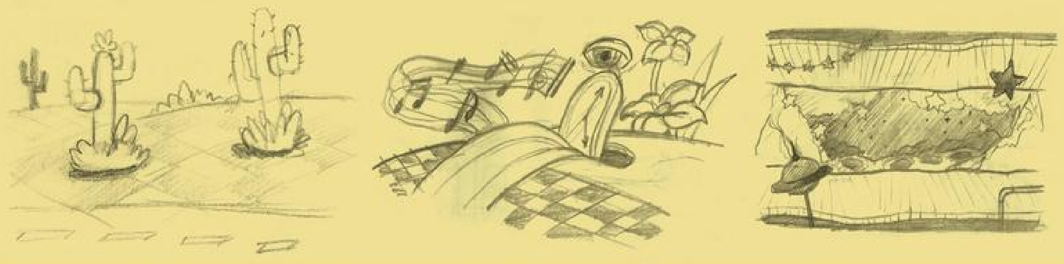






Pencil concept sketches for various Funhouse Frazzle enemies from animator Jake Clark. When designing an enemy, the gameplay is implemented with just moving gray blocks in code. The timing of all actions is perfected there and then an artist is tasked with coming up with a visual that works with that motion.

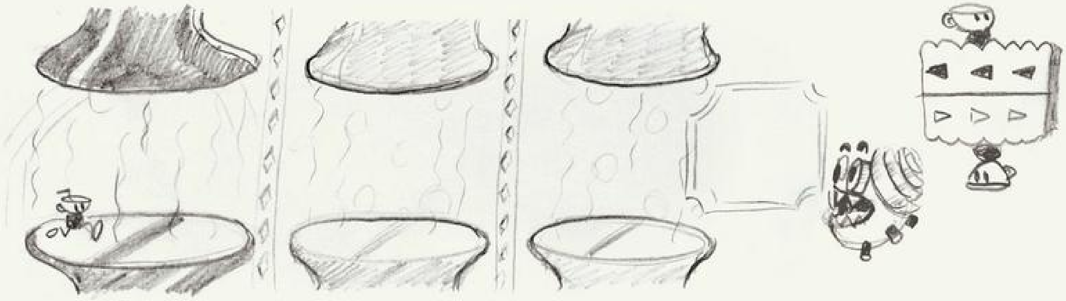


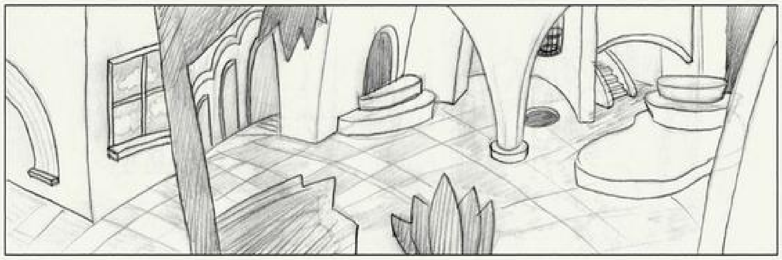


Funhouse Frazzle Background

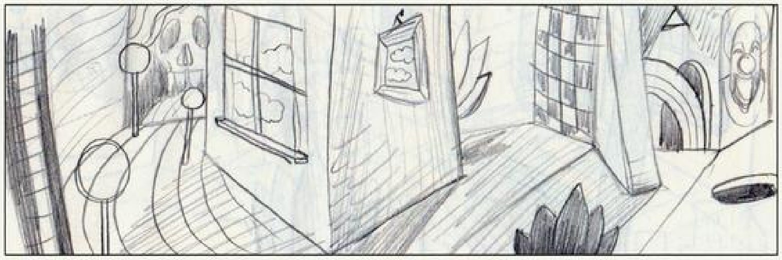
TO APPROPRIATELY CAPTURE the twisted visuals of an actual funhouse, we found the artistic works of M.C. Escher and Salvador Dali to be excellent touchstones for creating mind-bending geography and strange shapes. Oftentimes when wanting to push early concepts to extremes, art director Chad Moldenhauer would give just vague descriptions of themes or moods to the artists to try not to limit the range of ideas they may come up with. Here, under the theme of "funhouse," background painter Caitlin Russell explored a range of possibilities including cacti and starships mashed up with Dali's famous melting clocks.

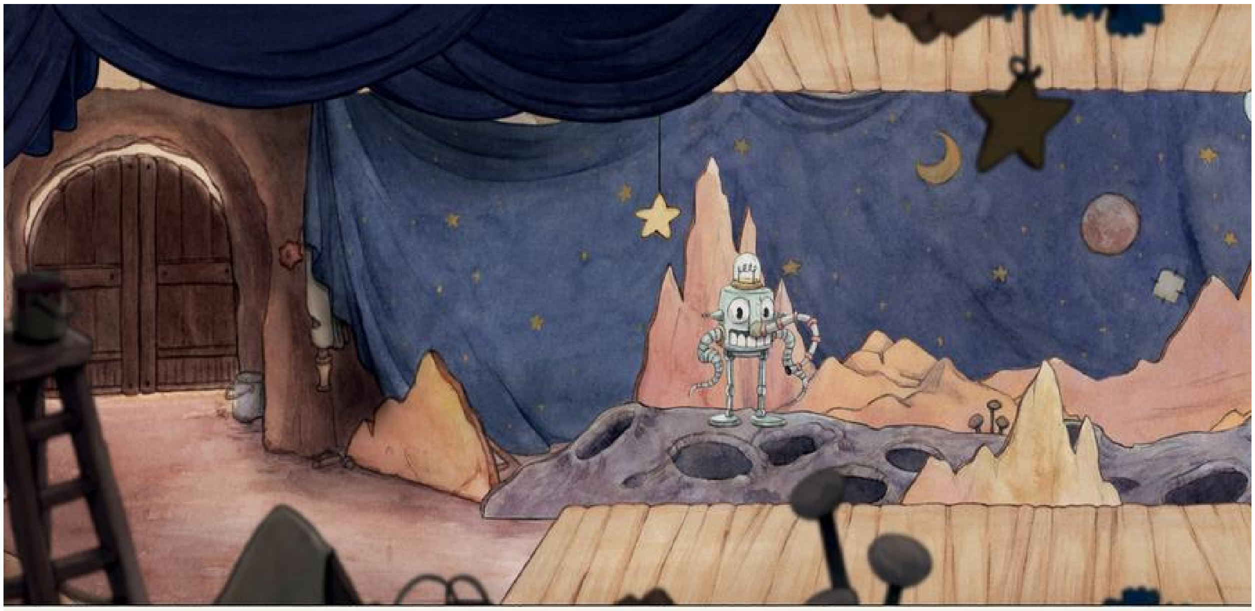
One of the great advantages of a completely surrealist artistic take is that it facilitates gameplay ideas that wouldn't otherwise make sense—like moving conveyor belts floating in the air and laid out in odd, impossible ways. In this case, the weirder something was, the more appropriately it fit!

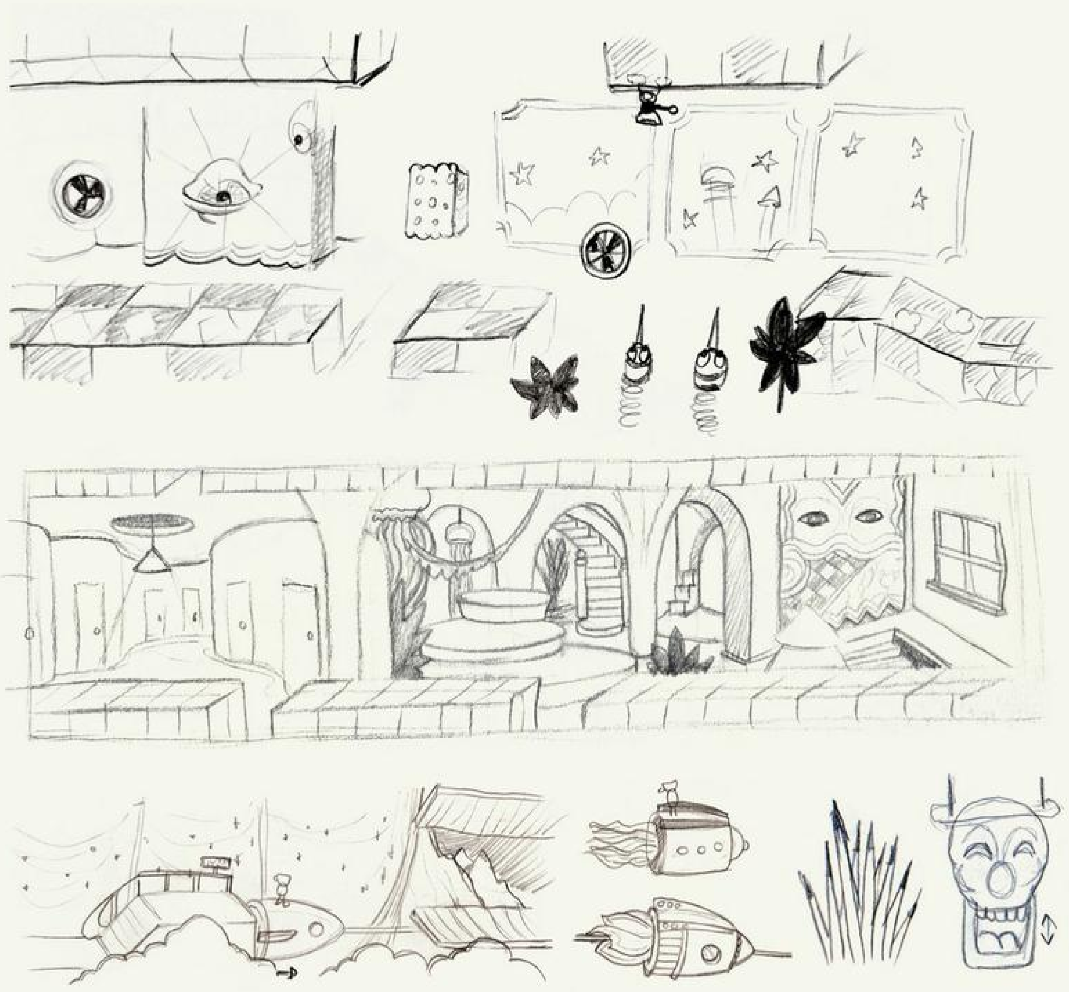


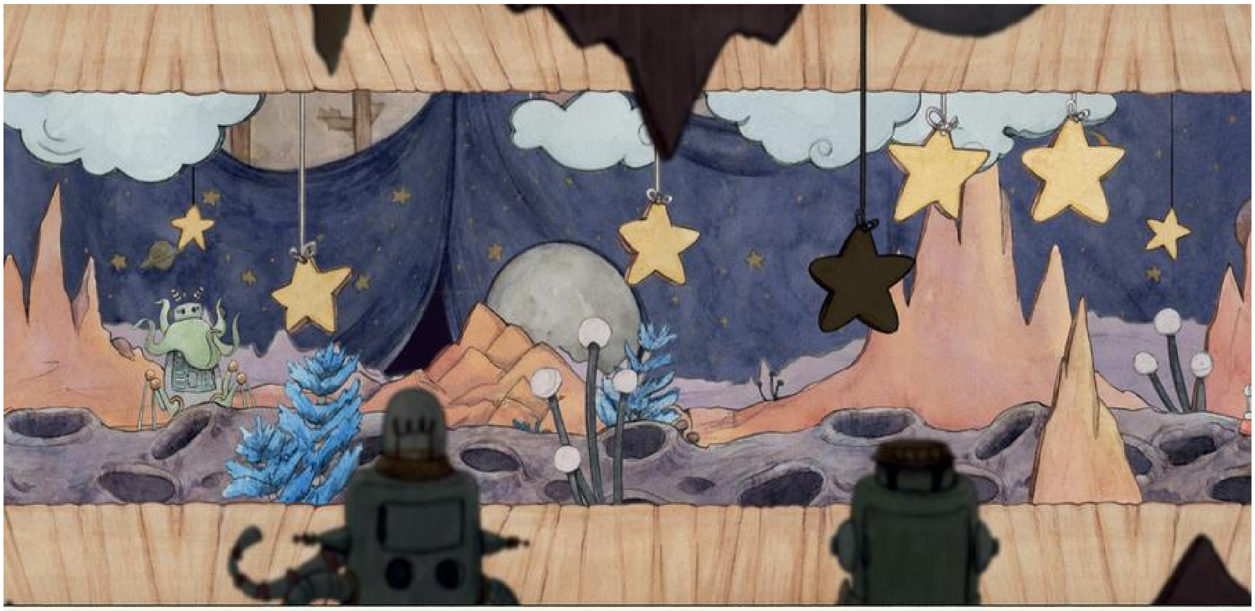


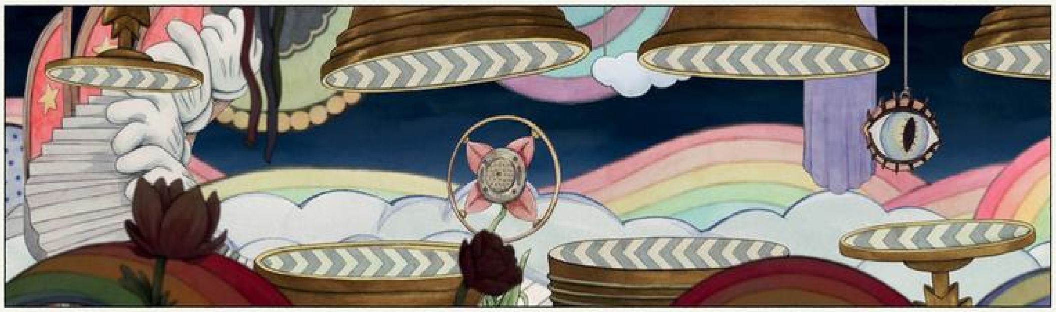
The early background sketches at left show impossible geometry and doors to nowhere that are heavily influenced by the 1920 German Expressionist film The Cabinet of Dr. Caligari. *Where possible, we would try to take influence from the artists that influenced the animators we were referencing.*

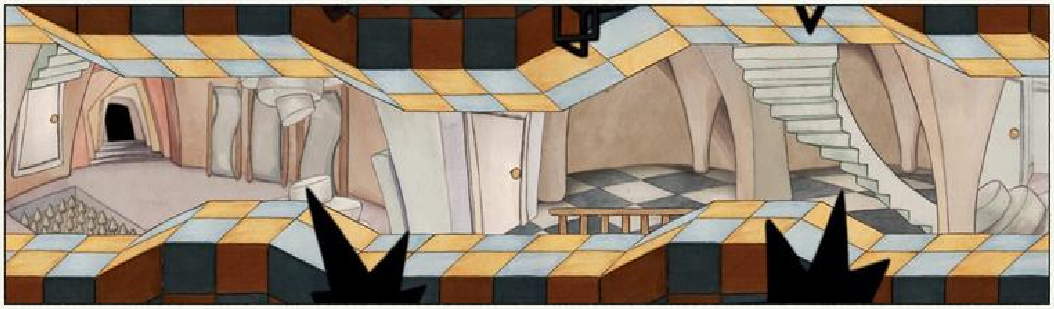












A visual touchstone for this level was Ub Iwerks's 1933 Willie Whopper cartoon *Stratos-Fear*, wherein the protagonist goes to the dentist and is pumped so full of laughing gas, he floats into space to find all kinds of oddities. The way Iwerks depicts space and astronomical forms in that cartoon had just the right amount of bounce and play that perfectly fit with the theme of Funhouse Frazzle. For further inspiration, we looked at the seminal 1902 French film *Trip to the Moon* for a moon reference and *Buck Rogers* toys from the era for inspiration for the landscape and robots.

As the level moves more from a toy box to a trippy nightmare, we constricted the play space and maximized the art-deco and surrealist influences with disembodied eyes and non-Euclidean geometry. Layered hands playing staircases like a piano and period appropriate microphone designs somehow tie the scene together through their disparity.

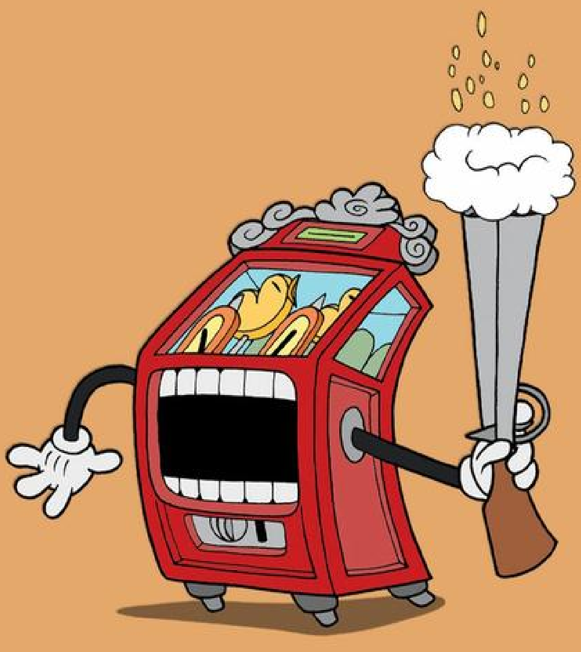
Run & Gun

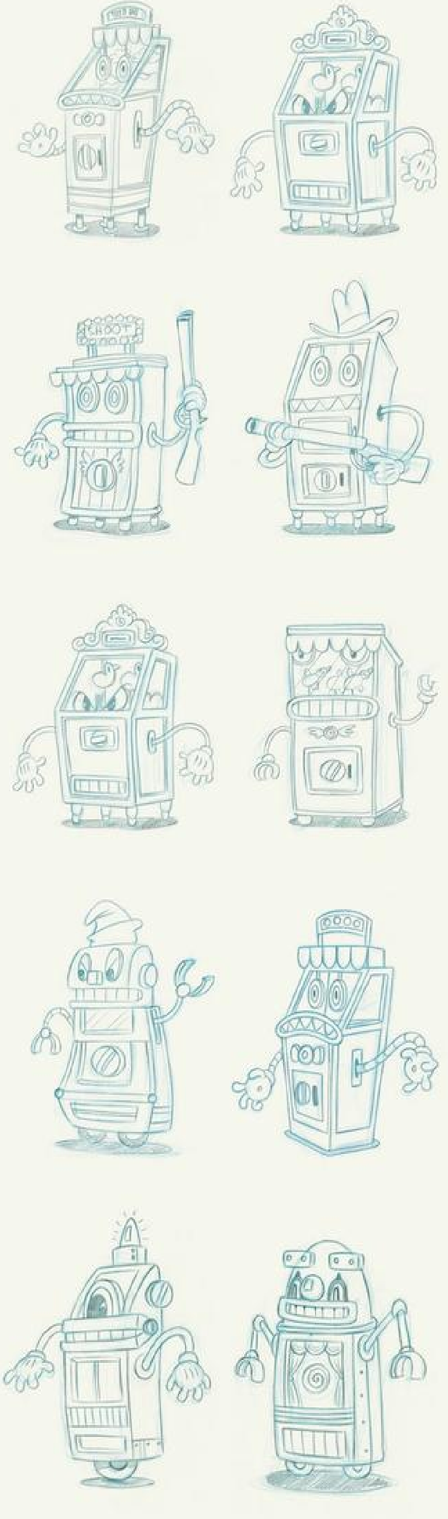
FUNFAIR FEVER

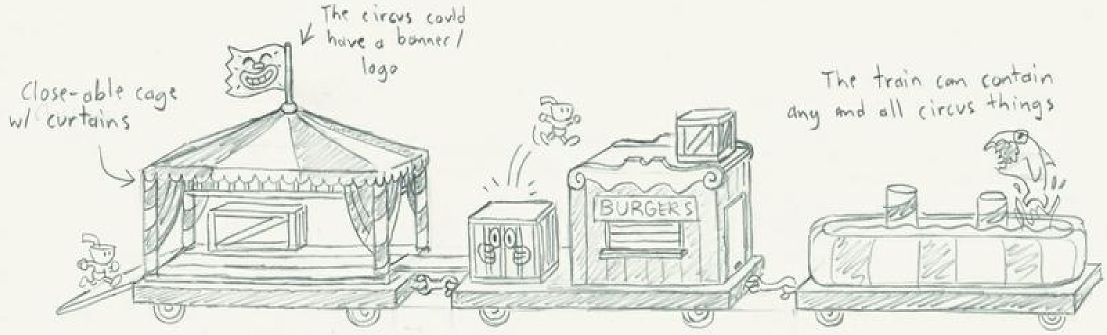
WHO DOESN'T LOVE A DAY at the circus? Unfortunately, Cuphead and Mugman get pulled in to be part of the show and while it's still fun and games, it's definitely hard on their health!

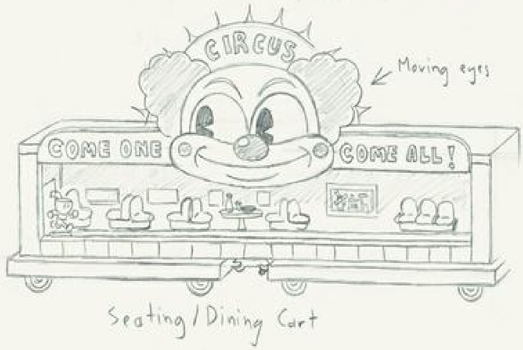
Keeping with our goal to make all of the run-and-gun levels have three distinct sections, Funfair Fever probably ended up with the most distinct individual parts. We started the first section wondering if we could teach the player not to shoot down everything in their path to make their life easier, as a hint to the secret pacifist possibilities of the platforming stages. In the middle portion, a barrage of balls have Cuphead jumping and skipping over dunk-tank platforms, narrowly avoiding falling in the drink. Finally, the last portion sees our heroes climbing to the top of the big top, facing an army of fair food sure to cause indigestion.

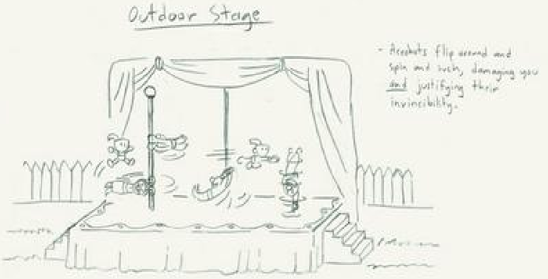
Taking influence from Ringling Brothers' circus posters and circus levels from the 8-bit games of our youth, we had originally planned to have a section riding on the back of the circus's train cars. That idea was eventually abandoned as it had too much in common with the Phantom Train boss fight to come later.

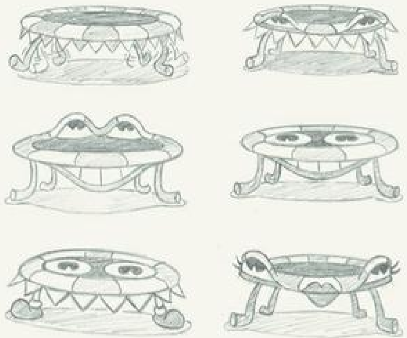


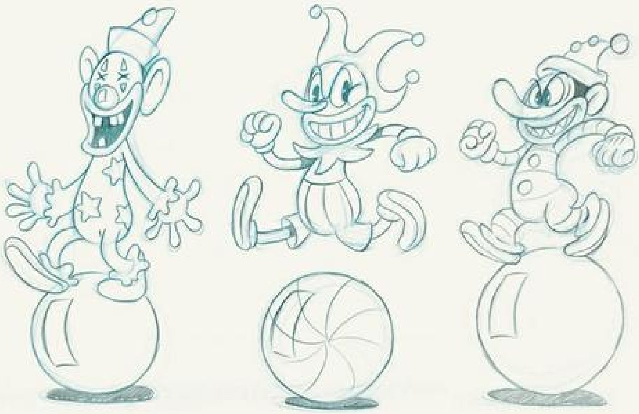


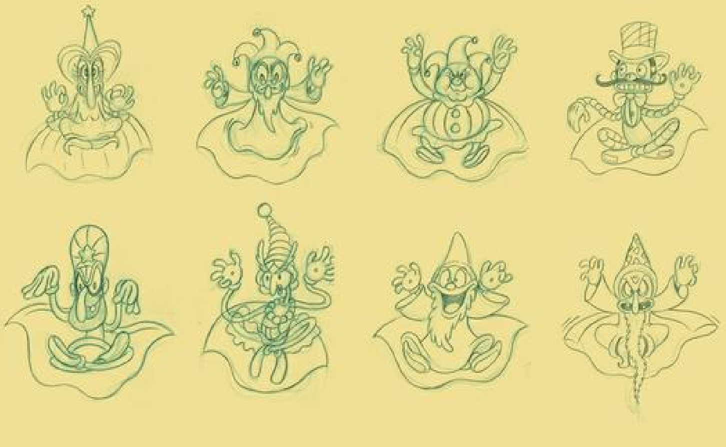

The circus could have a banner / logo
Close-able cage w/ curtains
The train can contain any and all circus things
BURGERS

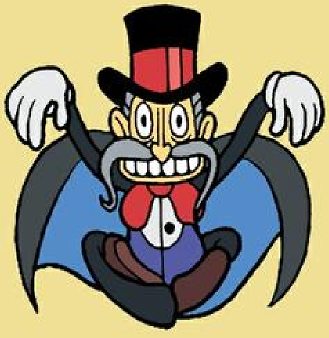

CIRCUS
Moving eyes
COME ONE
COME ALL!
Seating / Dining Cart

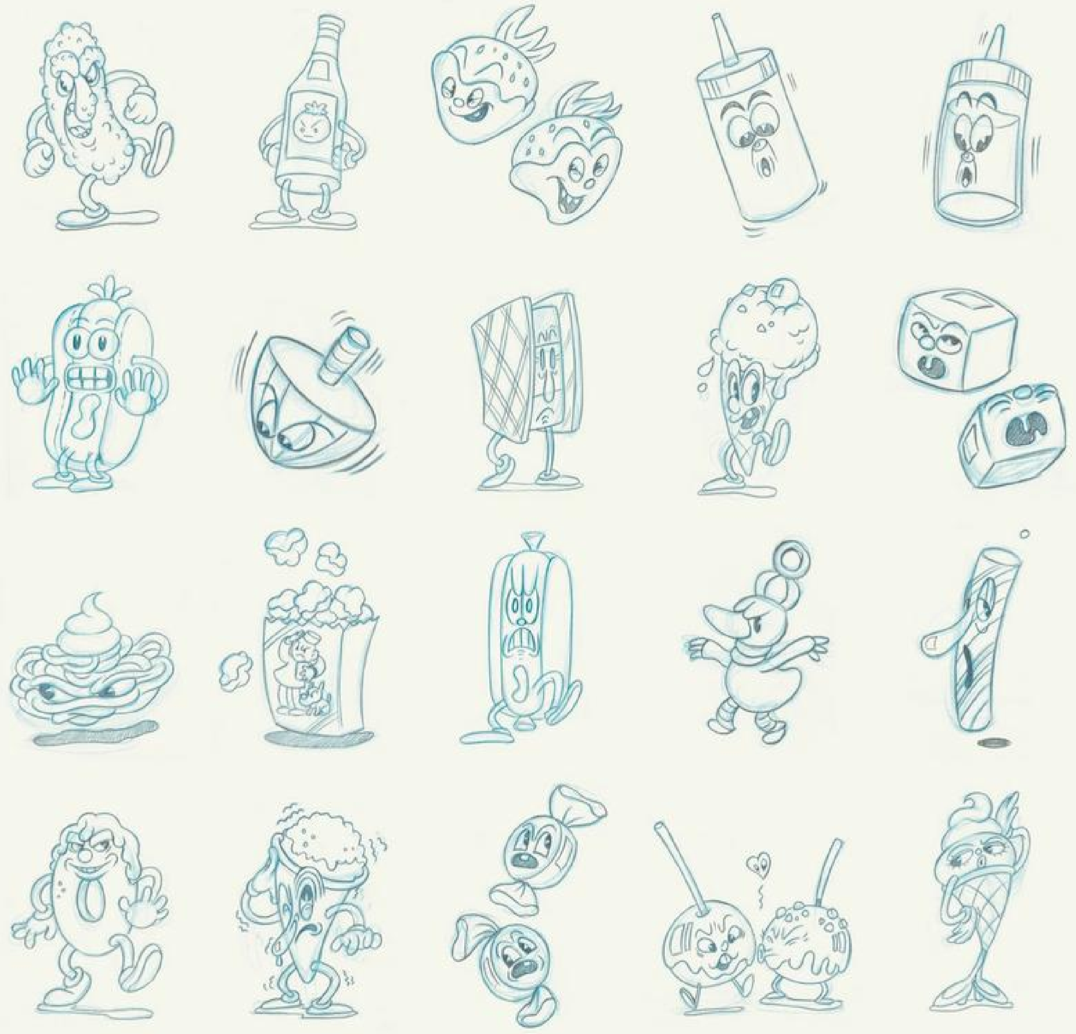

Outdoor Stage
- Acrobats flip around and spin and such, damaging you and justifying their invincibility.









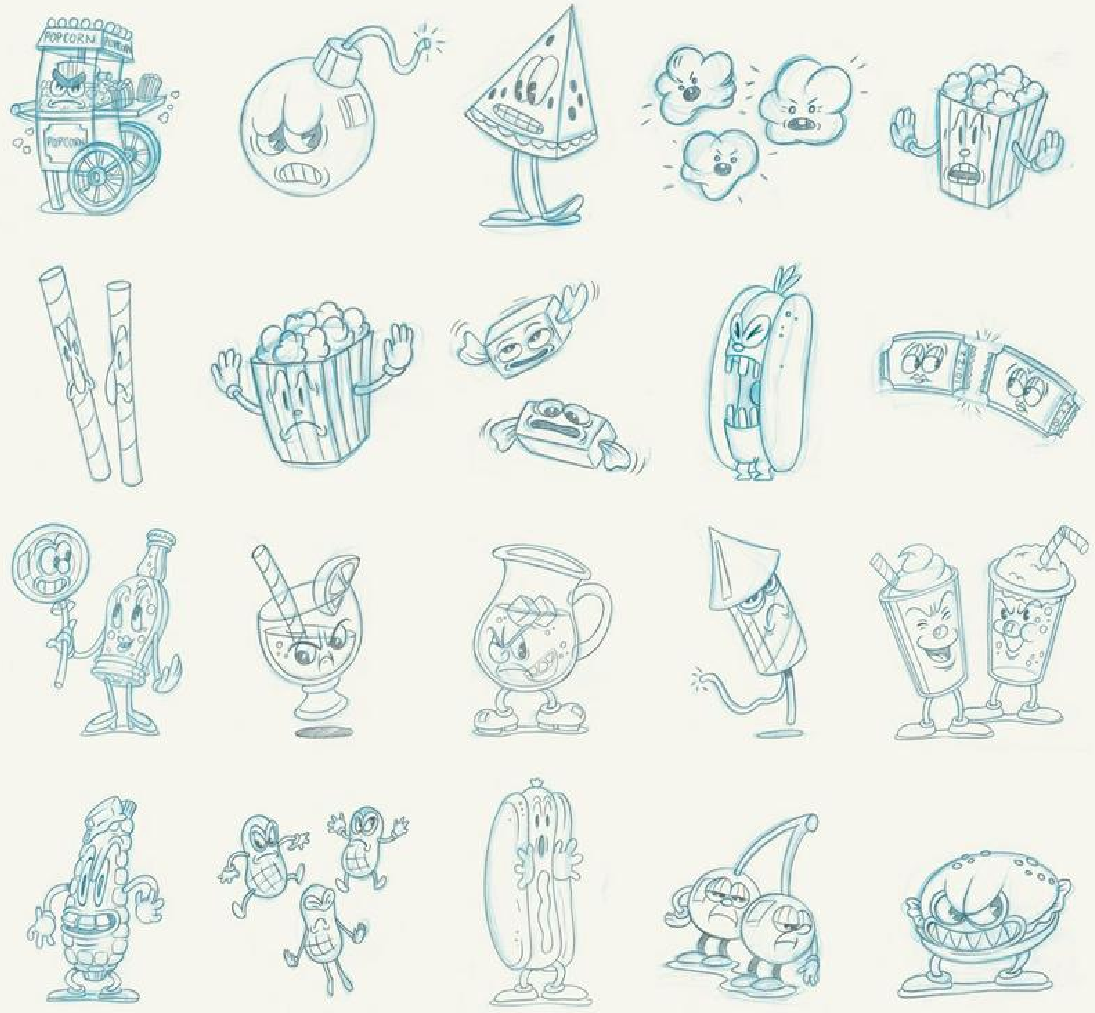


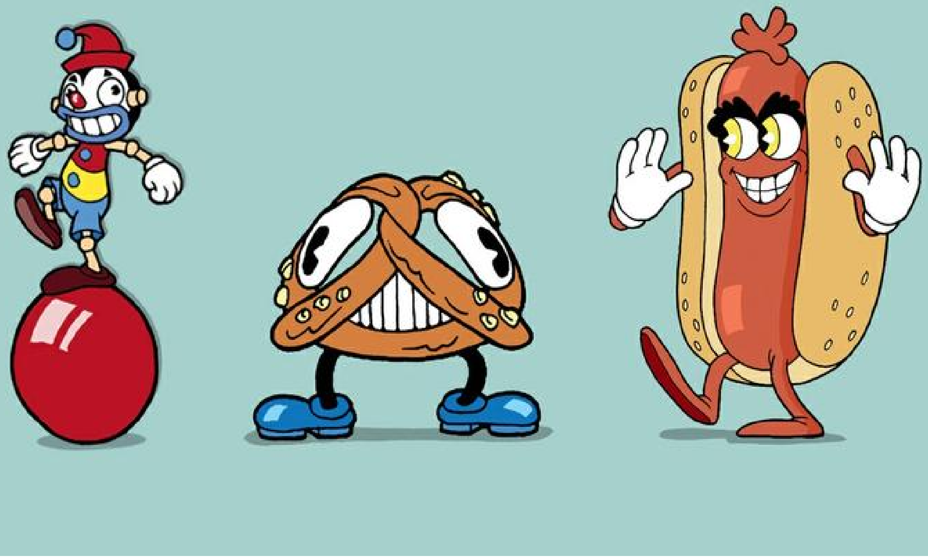
When coming up with visual designs for the enemies in a run-and-gun level, a theme would be chosen, and we would then try to extrapolate creatures and characters that would act as logical extensions of the bosses in the surrounding area and other critters that match the surrounding terrain. The enemies in Funfair Fever followed those principles in a number of ways.

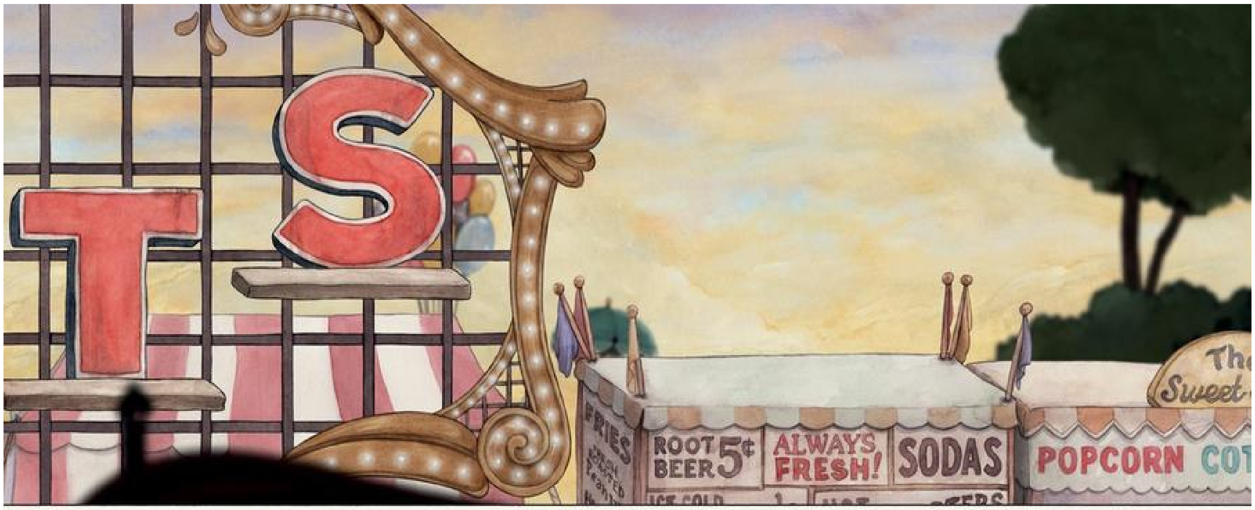
With Baroness Von Bon Bon ruling all of the candy creatures, we thought it would be interesting to flesh out the circus with carnival-food-based enemies of different varieties. Originally, an entire section of the level was based on concession snacks chasing down Cuphead, from bursting popcorn buckets to surly soda drinks and bouncing ice cream cones. Eventually, we started seeing too much overlap between the sweets of the Baroness and the food enemies we were creating, so we moved over to more salty treats like pretzels and hot dogs for a connected but contrasting theme.

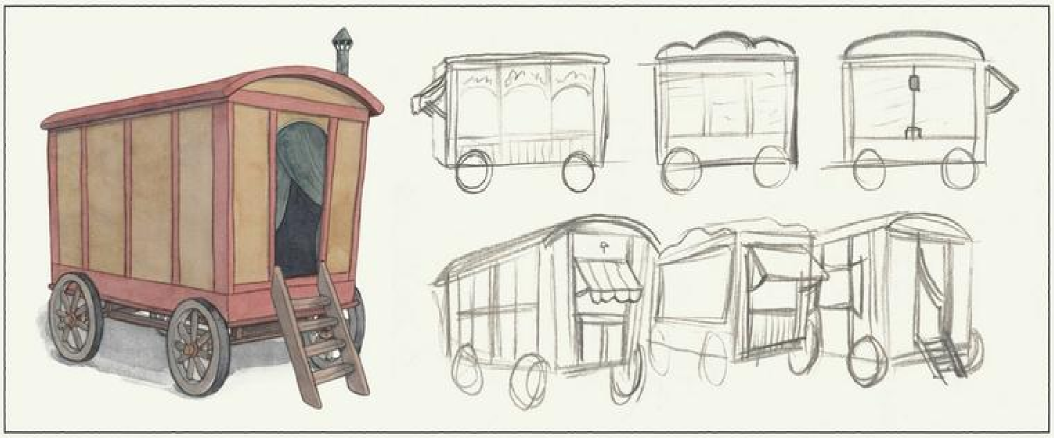
Clowns have such a deep connection to circuses, but with a clown boss in Beppi, we needed to differentiate this common enemy somehow. Using a more classic face-painted clown idea, we tried to aim for a nod to Pinocchio, blended with the type of wooden toy prize a child could win at a fair.

For the red arcade miniboss on the previous page, we looked at classic mechanical games of 30s which were generally pinball or whack-a-mole–style contraptions. Among the more complex of those games were shooting games that would fire pellets at mechanical ducks, so we brought one to life to serve as a tricky gatekeeper of the circus. We also referenced more modern electronic games of the video game variety by paying homage to the “Magikoopa” enemies with our own floating carnival magician.


POPCORN
POPCORN
POPCORN



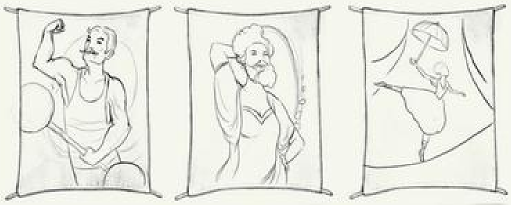


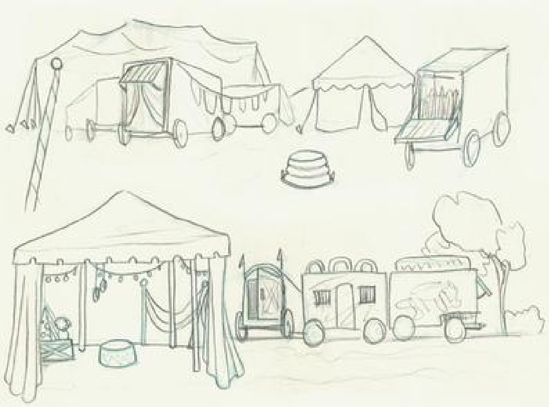


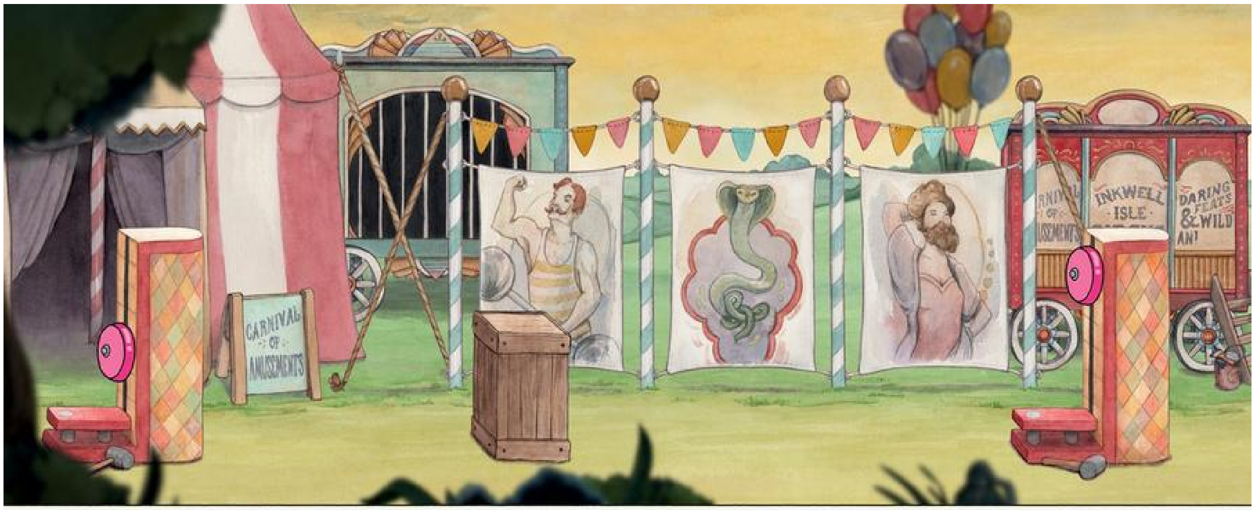
Funfair Fever Background

SCOURING THROUGH OLD PHOTOGRAPHS of circuses and prize fairs of the 20s and 30s, we found common sets of iconography and visual language cues that we tried to implement into the backgrounds of Funfair Fever. From the typefaces used to advertise all of the delicious treats available, to the posters selling death-defying feats of acrobatics and mind-blowing demonstrations of strength, the pitch of the circus was conveyed in the advertisements bearing their acts. It truly was the signage and presentation that enhanced the feeling of being at the circus, and background painter Caitlin Russell adorned the walls of the stage with as many of those ambitious promises as we could fit.

Due to the traveling nature of the shows, we took many of the ideas originally concepted for the canceled train cart portion of the stage and used the skeleton of those shapes to fill out the backgrounds with wooden carts and big top accoutrements. We'll leave the question of where the circus goes when it's not in town unanswered!






CARNIVAL OF AMUSEMENTS
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INKWELL ISLE
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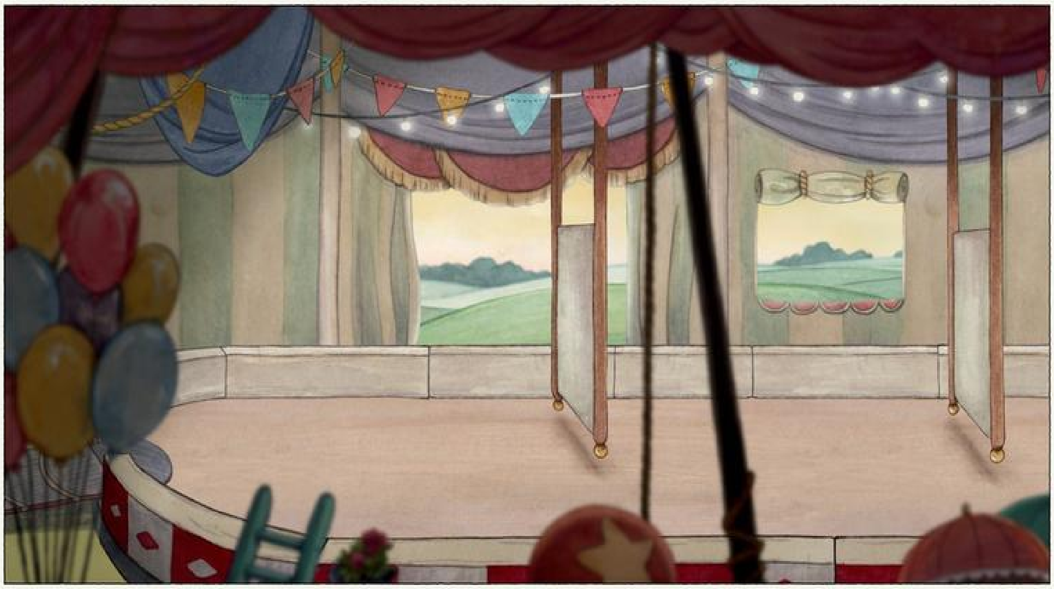
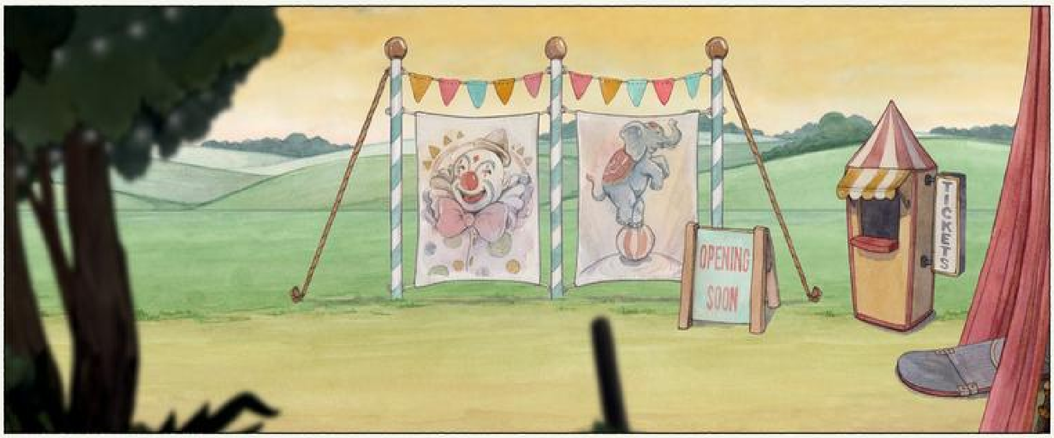


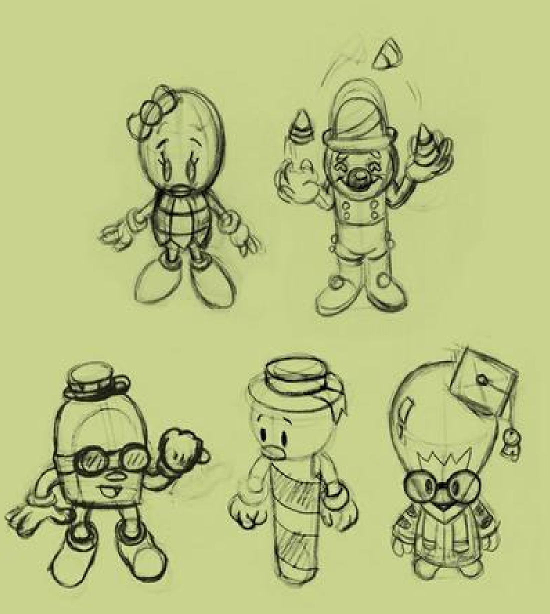

OPENING SOON
TICKETS

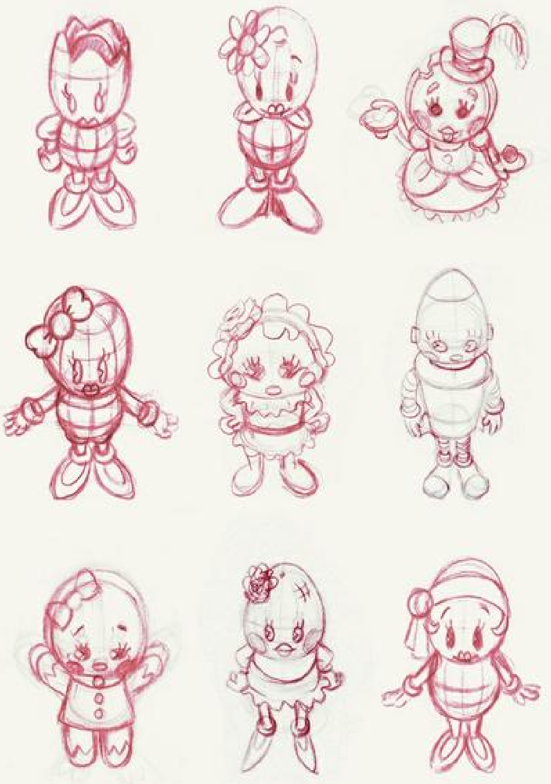
Inkwell Isle Two Residents

NON-PLAYABLE CHARACTERS

WITH THE CONCEPTUAL FOCUS of Inkwell Isle Two finalized, we looked to populating the island with characters that would not only flesh out the world and make it feel lived in, but to serve individual purpose to the gameplay systems and hint at the possibilities that could be contained therein.

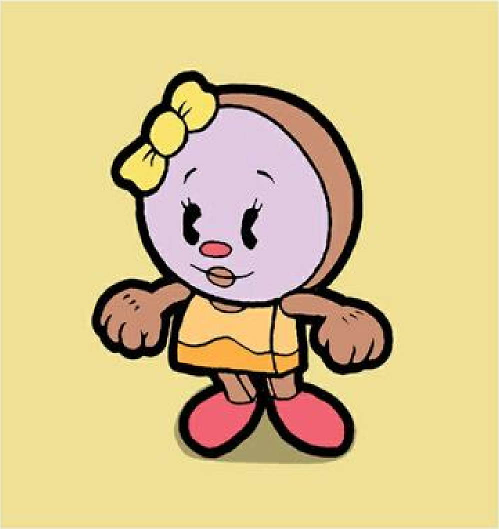
We wanted the friendly inhabitants in Isle Two to start to more explicitly point to some of the interesting aspects of our world map that extended across the entire game, including the first Isle. We wanted create goals with rewards, but also to inspire wonder about things that hadn't been hinted at at all yet. To keep the focus on action, we limited the explicit lore in the game, but we always loved how classic 8- and 16-bit JRPGs could make their worlds feel bigger than they actually were through insinuations delivered by their inhabitants, and we strove to accomplish that with our NPCs.

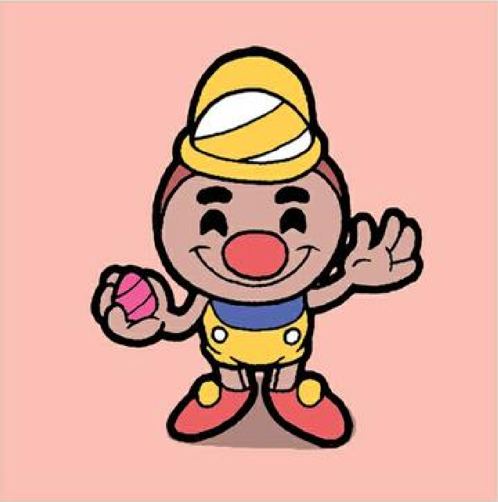




Ginger

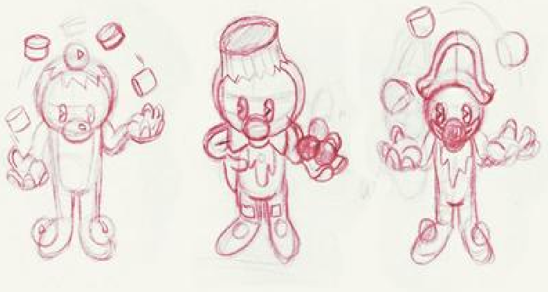
WE NEEDED AN NPC to hint to the player the existence of the secret paths around the islands that could bypass roadblocks in the player's way, so we wanted a character who would feel curious and rambunctious. We went with Ginger's gingerbread design to complement Buster, to hint at the link between the two for the entrance and exit to the path behind the mountains.

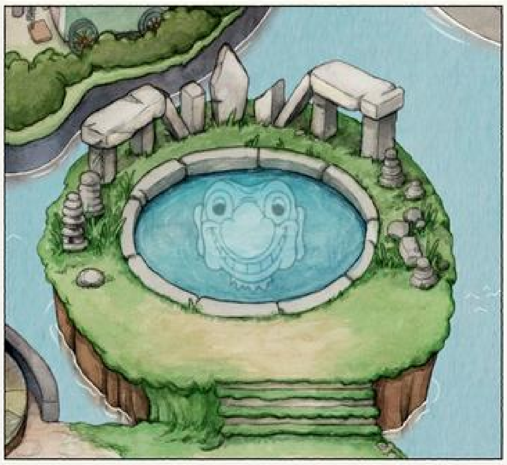




Buster

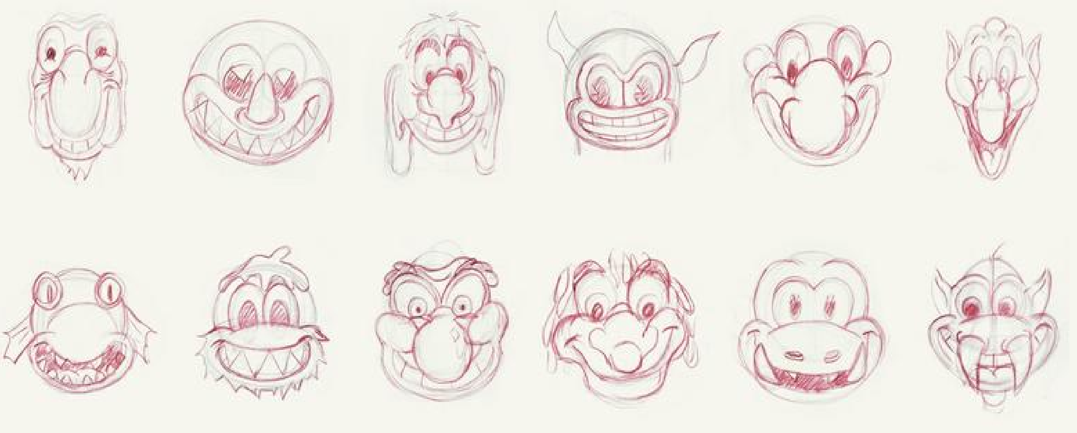
BUSTER, NAMED AFTER BUSTER KEATON and the buster cookie, is the NPC carnival counterpart to Ginger that tasks the player with completing multiple successive parries without touching the ground. We had Buster's in-game sprite juggle as many pink balls as the player had successively parried so far to signal them towards that goal.





Quadratus

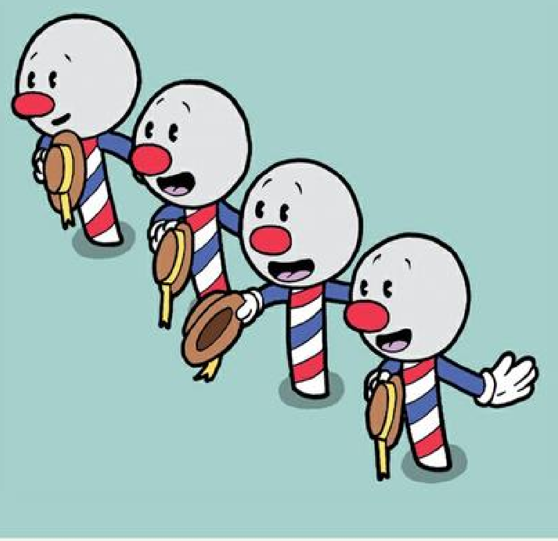
SINCE *CUPHEAD* WASN'T GOING TO HAVE limited lives, we wanted to include some way for players to know how well they were progressing. We felt like implementing the "death count" directly into the fiction would be better than just putting it in a menu, so we needed an NPC that was otherworldly and all-knowing to be able to know and convey that knowledge. Because Quadratus dealt with death, animator Danielle Johnson referenced the creepy facial designs of the eerie ghouls in *Swing You Sinners*, and tried to break the "bad news" in a light-hearted way by making the character speak in rhyme.

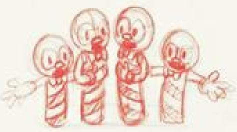
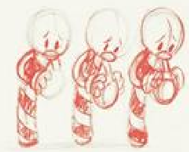
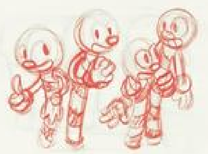
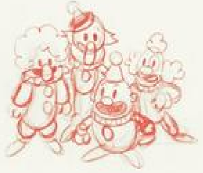
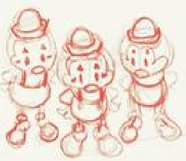
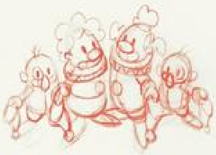
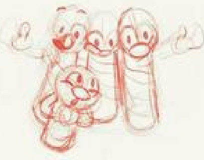
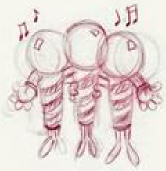
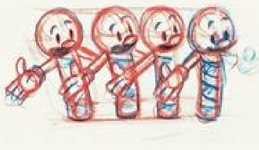
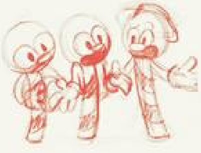
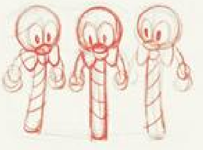
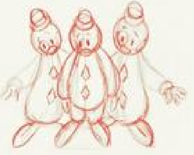
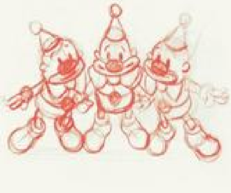
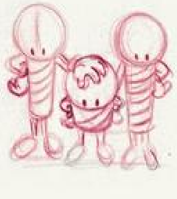
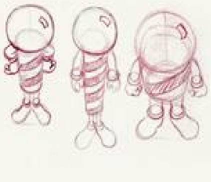
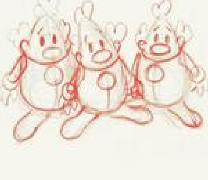


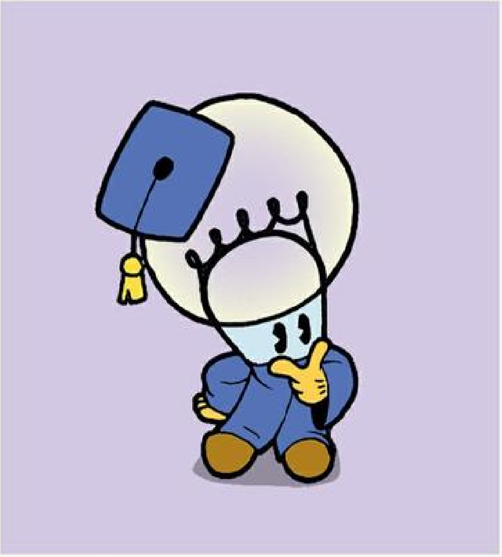
The Four Mel Arrangement

WHILE WORKING WITH the musical quartet Shoptimus Prime on the title screen song, composer Kristofer Maddigan started coming up with additional barbershop tunes. This spawned the idea of a downtrodden Barbershop Trio missing their fourth. Inspired by old video game instruction booklets that would have notes in them recommending that players took breaks between long sessions of playing, we thought a song telling the player to stop playing and go outside would be a fun and cheeky way to deliver the player a "reward" for completing the side quest of reuniting the quartet.

The visual idea of making them anthropomorphic barbershop poles was too perfect to overlook, so most of the concept development for the singers revolved around whether to unify or diversify their individual silhouettes.



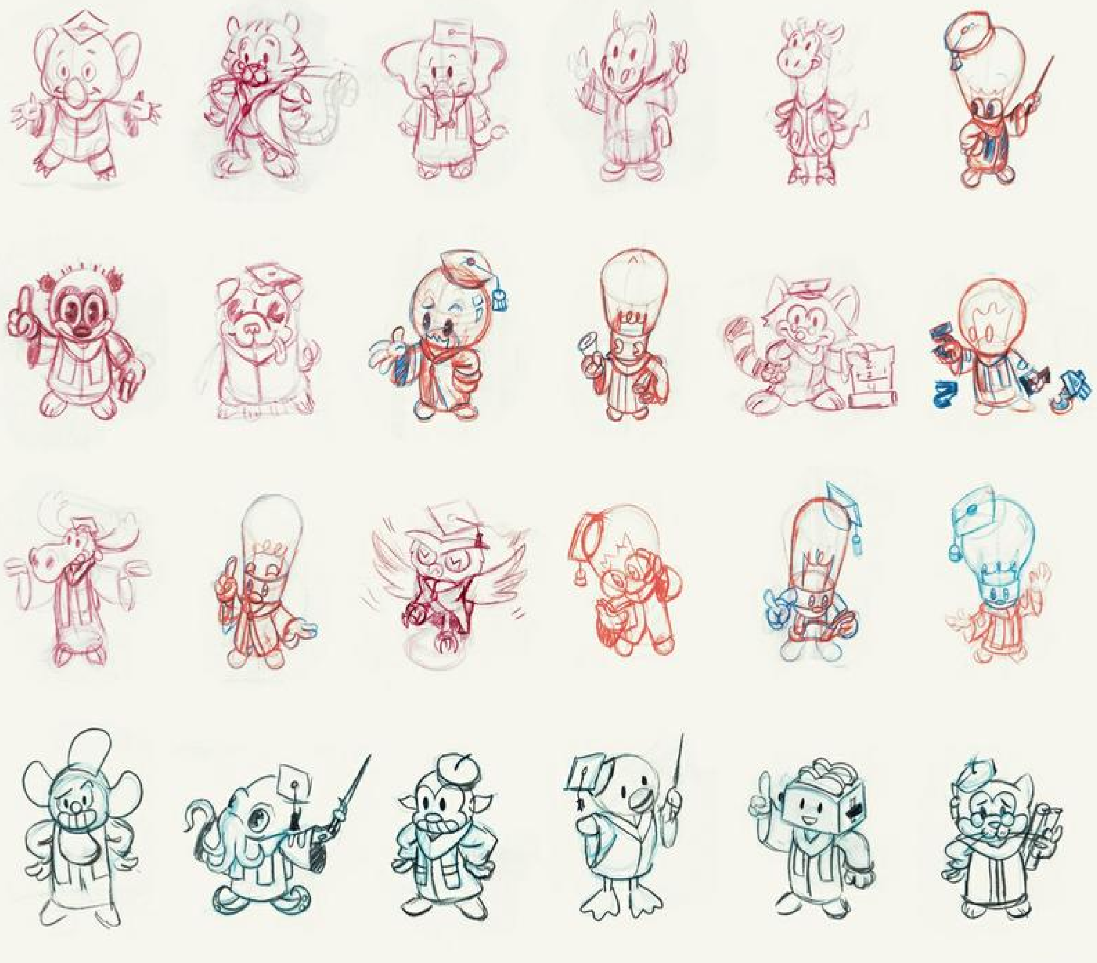

















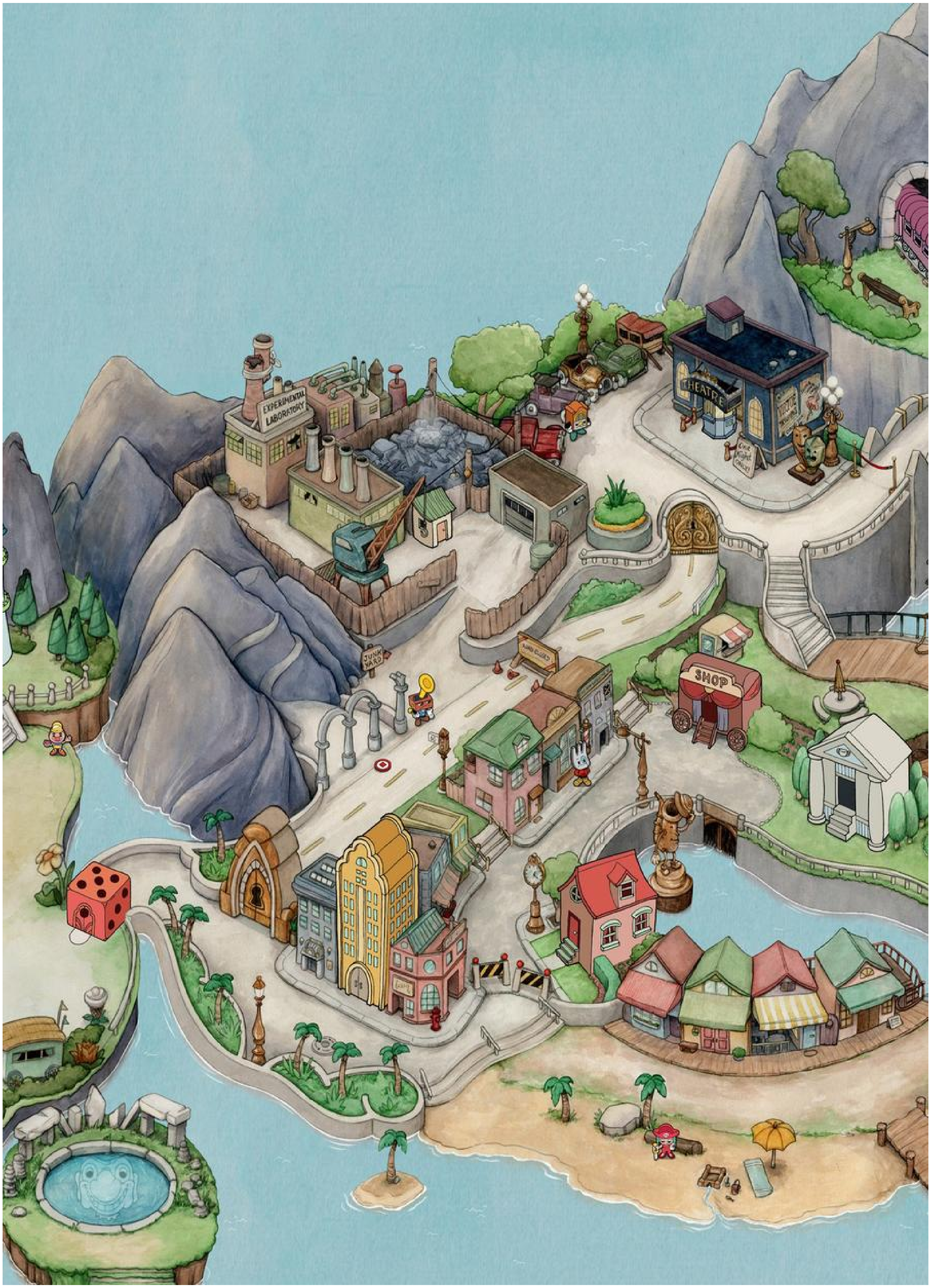


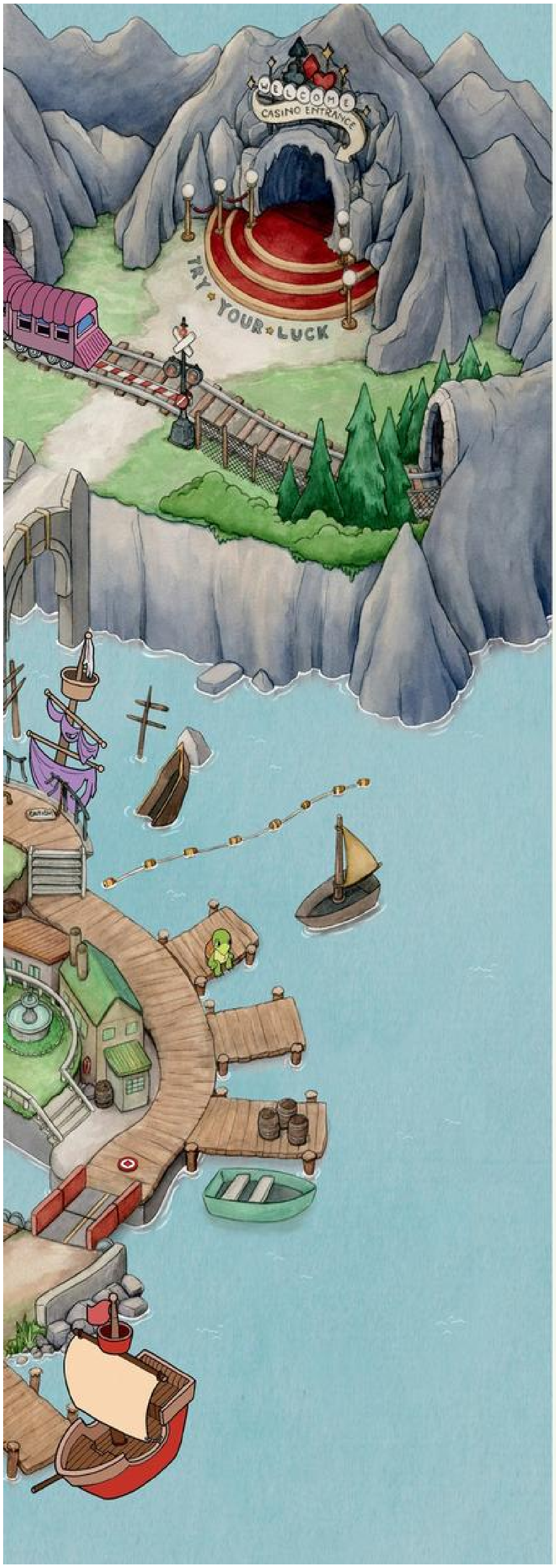
Lucien

LUCIEN WENT THROUGH many changes throughout the development of *Cuphead*. At one point, he served as a historian that would divulge lore about the world, which was cut to preserve the mystery and ambiguity of the fiction, and at another point, he was a quizmaster, posing skill testing questions that would eventually lead the player to a coin. Finally, he was going to act in conjunction with Quadratus, rewarding players with a super-secret item based around an arcane puzzle involving the number of times the player had died. That was finally removed because we changed the way charms worked and it also felt wrong to incentivize players to fail at bosses for a reward.

So Lucien became the scholar, inquisitive and bookish, a personality trait which was often represented in cartoons of the era as a bright idea: a light bulb.




EXPERIMENTAL LABORATORY
THEATRE
ONE NIGHT ONLY
JUNK YARD
SHOP



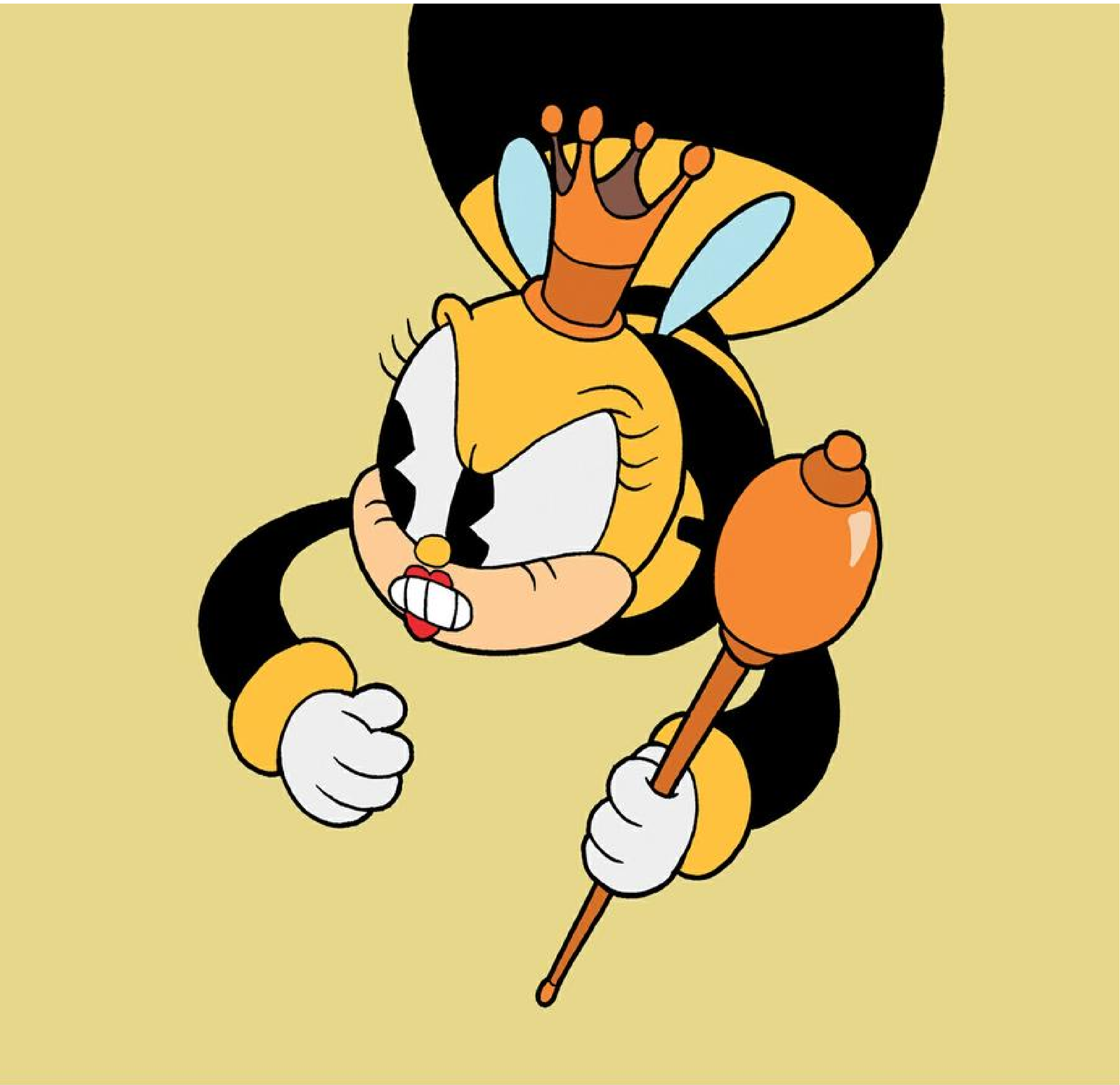
Chapter V:

Inkwell Isle Three

INKWELL ISLE THREE PAYS HOMAGE to the hustle and bustle of the big city—an amalgam of 1930s New York, LA, and other harbor towns, all through the lens of classic cartoons. While high-level themes for the game's Isles were often written down ahead of time, the exact geography of each one only came together once all the boss themes had been locked in. Ultimately, the visual diversity of the foes we chose for this Isle naturally leant themselves to a feel of somewhere metropolitan with a side of grit—fitting, as this place is home to some of *Cuphead's* very hardest bosses!

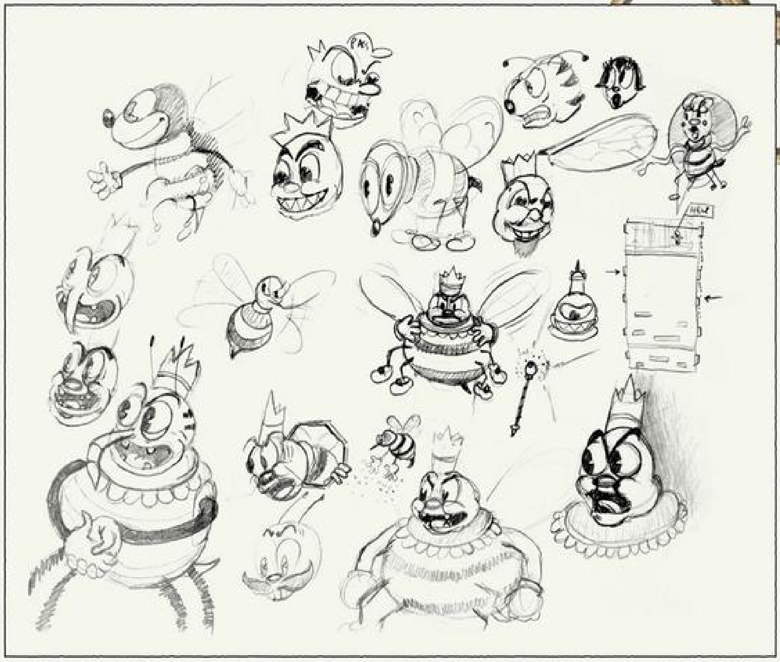
Like all of the game's paintings, Isle Three was created on hot press watercolor paper. The smooth surface of hot press is important to get the same feel of 1930s backgrounds since normal cold press watercolor paper is textured, and the texture creates unwanted shadows and noise when scanned digitally. Using hot press allows for all the little details to pop, from the expression on the tuba statue in the harbor (a nod to Disney's *Music Land* and a celebration of jazz), to the "Experimental Laboratory" sign atop Dr. Kahl's workshop—a reference to the 1933 short *Betty Boop*'s *Warehouse*.

The Isle's topmost boss, the Phantom Express, was a challenge to fit into the design, but allowed us to externalize the idea that The Devil's casino is quite literally on the wrong side of the tracks.

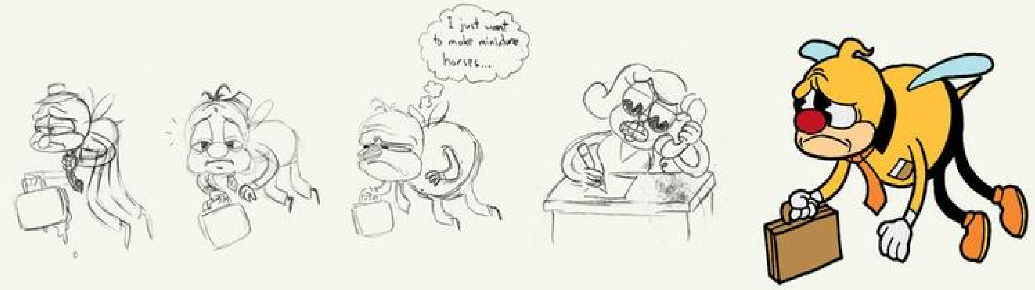


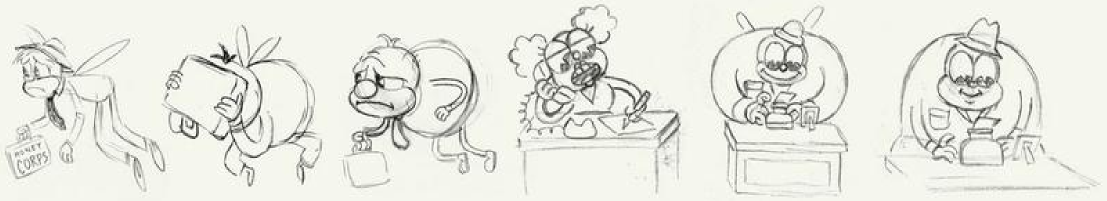
Rumor Honeybottoms
in
"HONEYCOMB HERALD"

IN MOST CASES, THE BOSSES you encounter in *Cuphead* are spoiling for a fight from the moment you meet them—after all, they're in no rush to give up their eternal souls. That's not the case, however, for the sharp, powerful Rumor Honeybottoms. A tribute to the "9–5" corporate culture that emerged (and for a time, collapsed!) during the 1920s and 30s, Honeycomb Herald sees Cuphead fending off Rumor's corporate security before she'll even deign to deal with him herself. She's quite literally a busy bee, and she has a hive to run. While deliberately generic enough to stand in for any office, we always envisioned this level as the headquarters



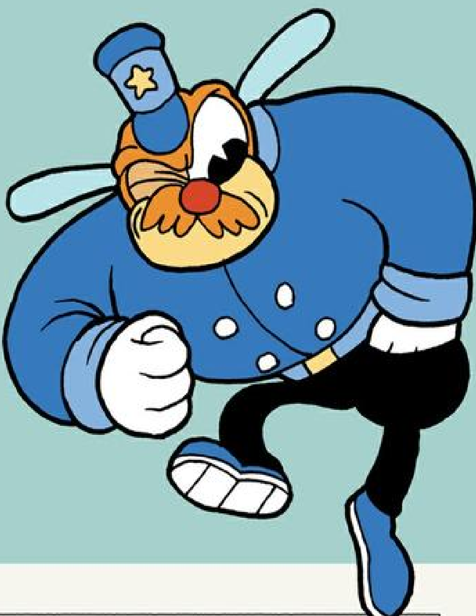
These enemy sketches from animator Jake Clark gave us a lot of options to choose from, but we ultimately couldn't resist the idea of a corporate drone being a literal worker bee. If you look closely at the thought bubble, you'll even see he daydreams of becoming an artist.


I just want to make miniature horses...



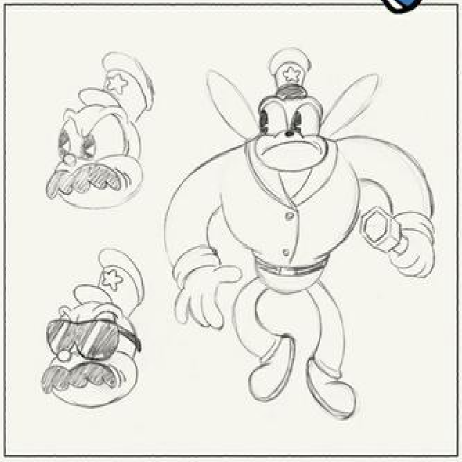
of a major tabloid newspaper on the Inkwell Isles—after all, who better to run a paparazzi rag than someone named Rumor Honeybottoms? Strong guiding toons during our concept phase for Rumor also include Fleischer Studios' *Ants in the Pants,* as well as their 1941 animated feature *Mr. Bug Goes to Town*.

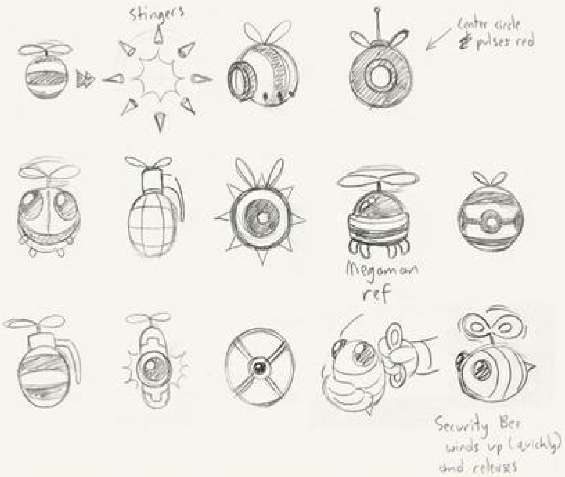
From a design perspective, we drew some influence for Rumor from "Honey Woman," who herself was an unused boss character from Capcom's *Mega Man 9* (eventually redesigned during that game's development phase to become Hornet Man). In addition, her intro (in which she bangs together a knife and fork) is a nod to another Capcom favorite of ours, *Darkstalkers 3*, whose character Q-Bee does the same thing during one her finishing fight poses. While we initially explored a variety of characterizations for this boss, some influenced from a personal favorite Fleischer Studios short *Cobweb Hotel*, our brains kept drifting back to the quintessential queen bee personality, befitting of a character with a veritable news empire to manage.

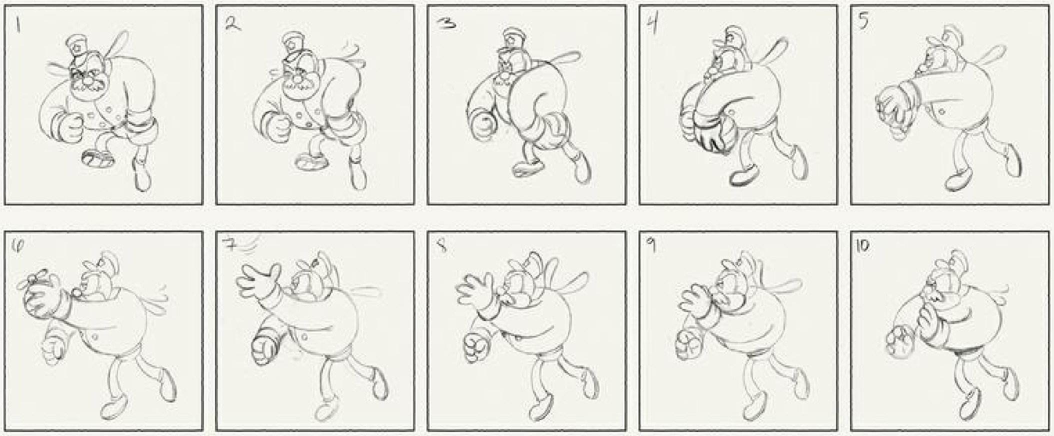


Security Bee

YOU'LL HAVE TO EXCUSE Rumor's head of security for trying to shoo you out of the building. He doesn't mean anything by it, but you really are being a nuisance by traipsing on private property. From his "I'm gonna getcha!" grabbing idle animation to his defeat animation in which he's begrudgingly rubbing a bandaid on his shoulder, we wanted this character to exude both authority and reluctance. He may be responsible for keeping watch, but we wanted to give off the feeling that he'd much rather be offscreen sipping a coffee than chasing Cuphead around the stage. Below you can see his ten-frame bomb-throwing animation from Jake, during which he never loses his gruff, ho-hum expression, as well as a series of unused concepts for projectiles (including a wind-up mini bee bomb).




stingers
center circle & pulses red
Megaman ref
Security Bee winds up (quickly) and releases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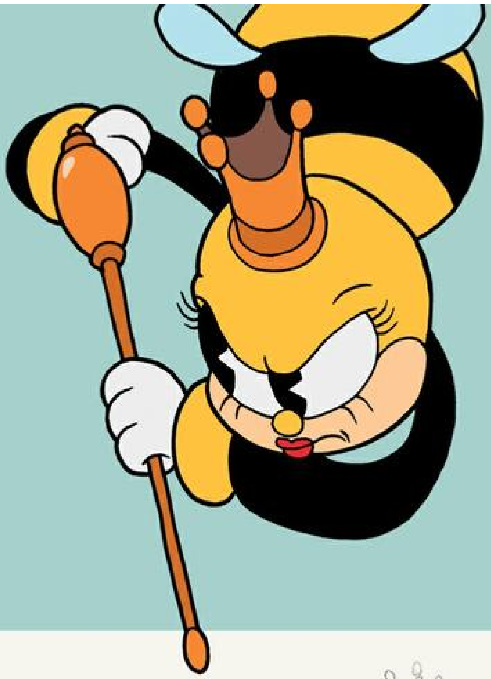
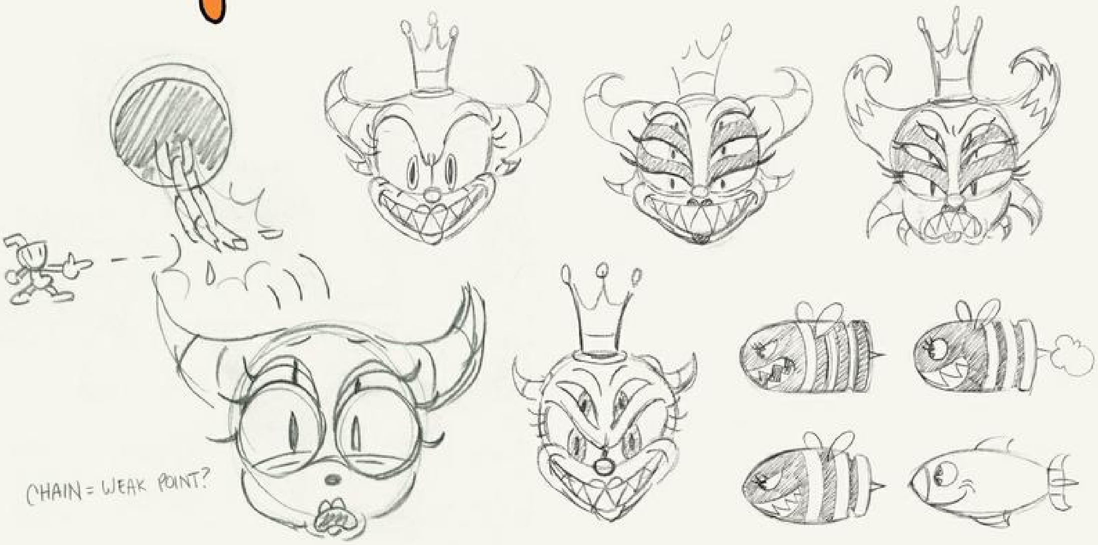
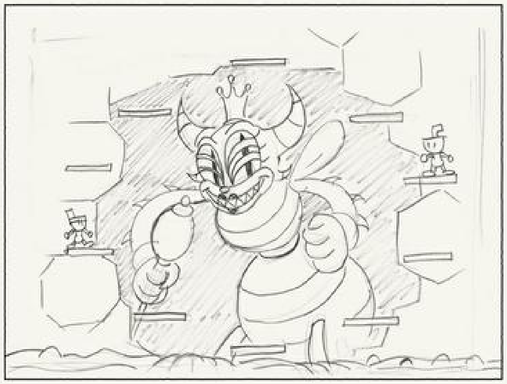
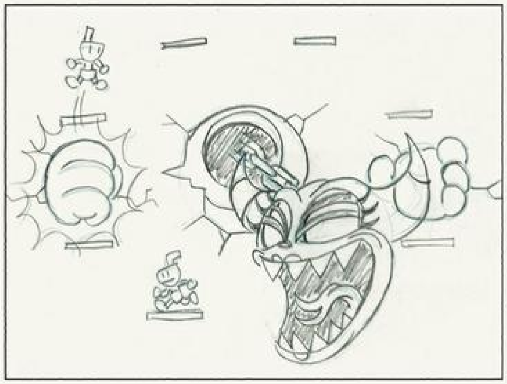


Rumor Honeybottoms

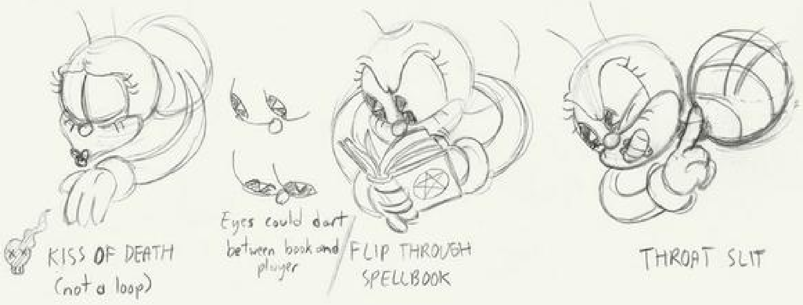
IN CONTRAST WITH THE CORPORATE office imagery of Honeycomb Herald, Rumor herself was always envisioned as the kind of magic-wielding boss you'd see in a Super Nintendo Japanese role-playing game . . . if it was made during the 1930s. This is why she commands massive energy orbs and uses a magical spell book to achieve her transformations—a lot of our early concept exploration leaned into the idea that she would embrace a mutated "all-powerful" form as the battle went on. As seen below, we had early aspirations of Rumor bursting out of the fight's background, with the foreground honey even flowing out of the stage as she did so. As is so often the case in game development, however, we had to balance those aspirations with development realities, so that version of Rumor never did leave the concept stage.

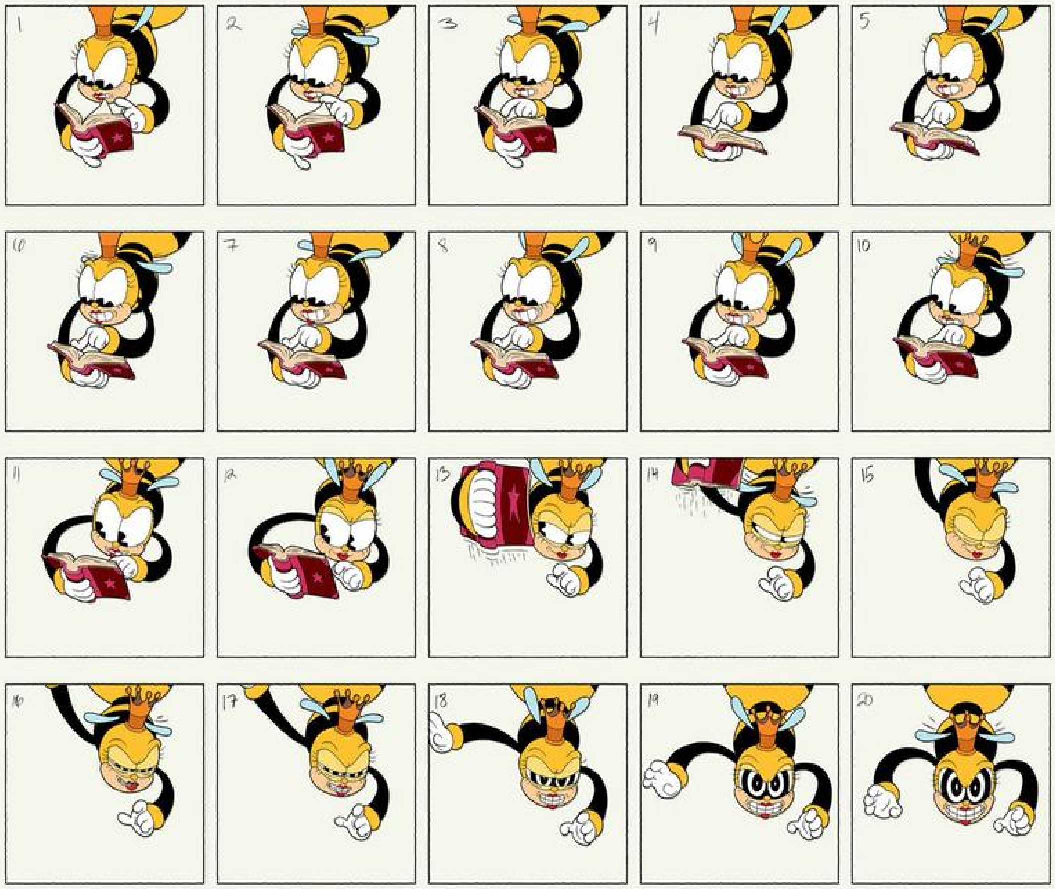

CHAIN = WEAK POINT?





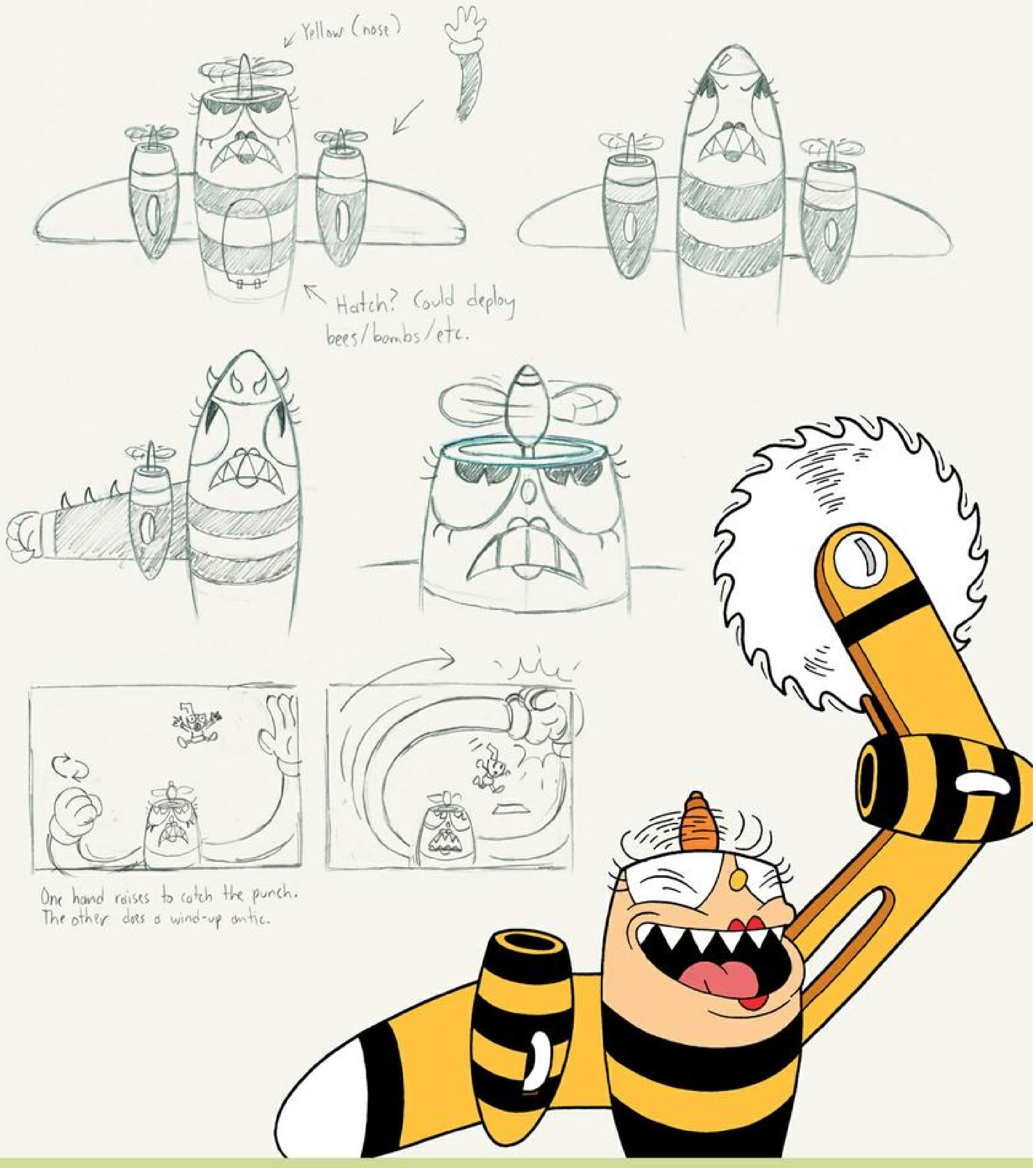
A closer look at Rumor's twenty-frame spell book antic, which kicks off her transformations. Frames 10–13 in particular really help to sell the idea that she has something up her sleeves. With any antic in Cuphead, *it was always important for us to clearly forecast upcoming attacks to the player for design fairness.*





It's easy to look back at a game's development with rose-colored glasses. To see every idea as the result of inspiration striking at just the right moment, or to paper over the practicalities of bringing a game to life. In the case of Rumor Honeybottoms's wild and over-the-top final phase transformations, the truth is that they were defined just as much by those practicalities as anything else. In particular, the fact that we made this stage quite a lot wider than it needed to be for the player to navigate the first parts of the battle left us with plenty of leeway to zoom out, and in search of something to do with all that room. After working with Rumor animator Jake Clark on ideas for exciting screen-filling options, we arrived at one that felt sinister, gleeful, and perfectly 1930s: a transformation into a massive, buzzsaw-wielding plane.

Not just any plane, though, a B-17 bomber—or rather, a *Bee*-17 bomber. This was both an homage to Mattel Electronics'

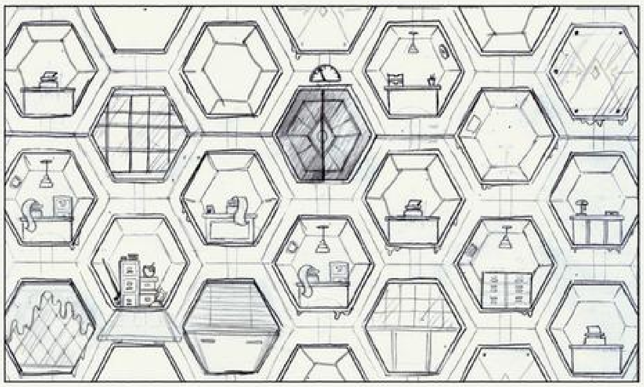

Yellow (nose)
Hatch? Could deploy bees/bombs/etc.
One hand raises to catch the punch. The other does a wind-up antic.

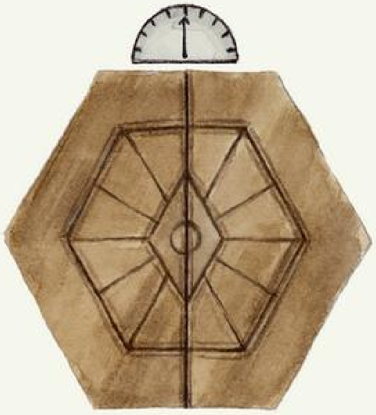
Intellivision game *B-17 Bomber* and the kind of pun-based sight gag you'd see all the time in the 1930s. This is the same reasoning that motivated the idea of attaching a *buzz*saw to plane-Rumor's wings (get it? the sound a bee makes? Hey, don't blame us, blame classic cartoons for what they've done to our brains!). On that note, the buzzsaw's propeller spin is one of the places in *Cuphead* for which we mimicked dry brush painting to achieve a whirring blur effect. In the 30s, dry brush painting involved literally painting onto the celluloid, with strokes trailing inked lines to give a palpable sense of motion. As coloring was one of the few parts of our process not done with classic materials, our dry brush effect was achieved digitally.

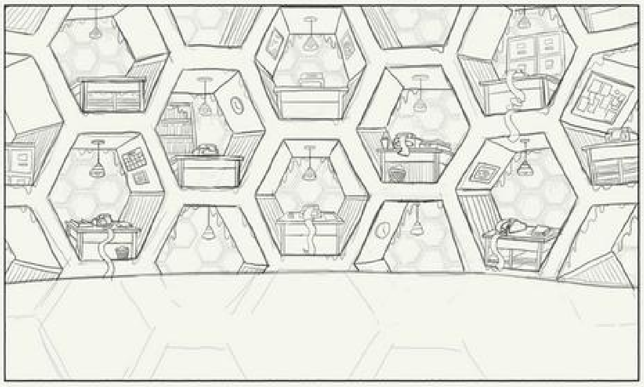
Honeycomb Herald Background

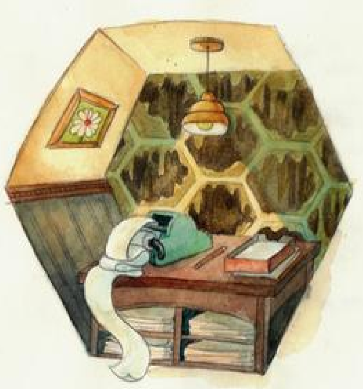
AS THE SCOPE AND AMBITIONS for *Cuphead* grew, one of the first positions we knew we needed to bring on board was a professional background painter. For us, that's a big part of why Honeycomb Herald's background holds a special place in our hearts—as it led us to Cuphead background artist Caitlin Russell! After sending a small portion of this background to prospective candidates for the purposes of a short practical evaluation, Caitlin absolutely aced it, and we knew we had to work with her.

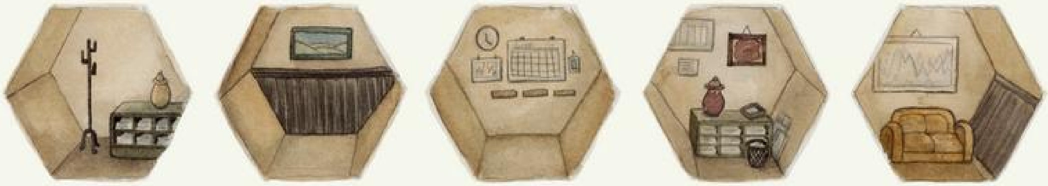
Since Rumor's fight would be scrolling upwards as you went, and looping as a result, the challenge here was to maintain a freshness to what players were seeing while also creating spaces that were generic enough to loop seamlessly. It took a lot of careful concepting to find the right balance—including a failed experiment in which we shot for a third layer of parallax (which ultimately muddied the visuals too much). However, with the addition of bubbling honey "lava" dropping from the top of the screen, and waterfalls of it cascading at the sides, things really came to life.

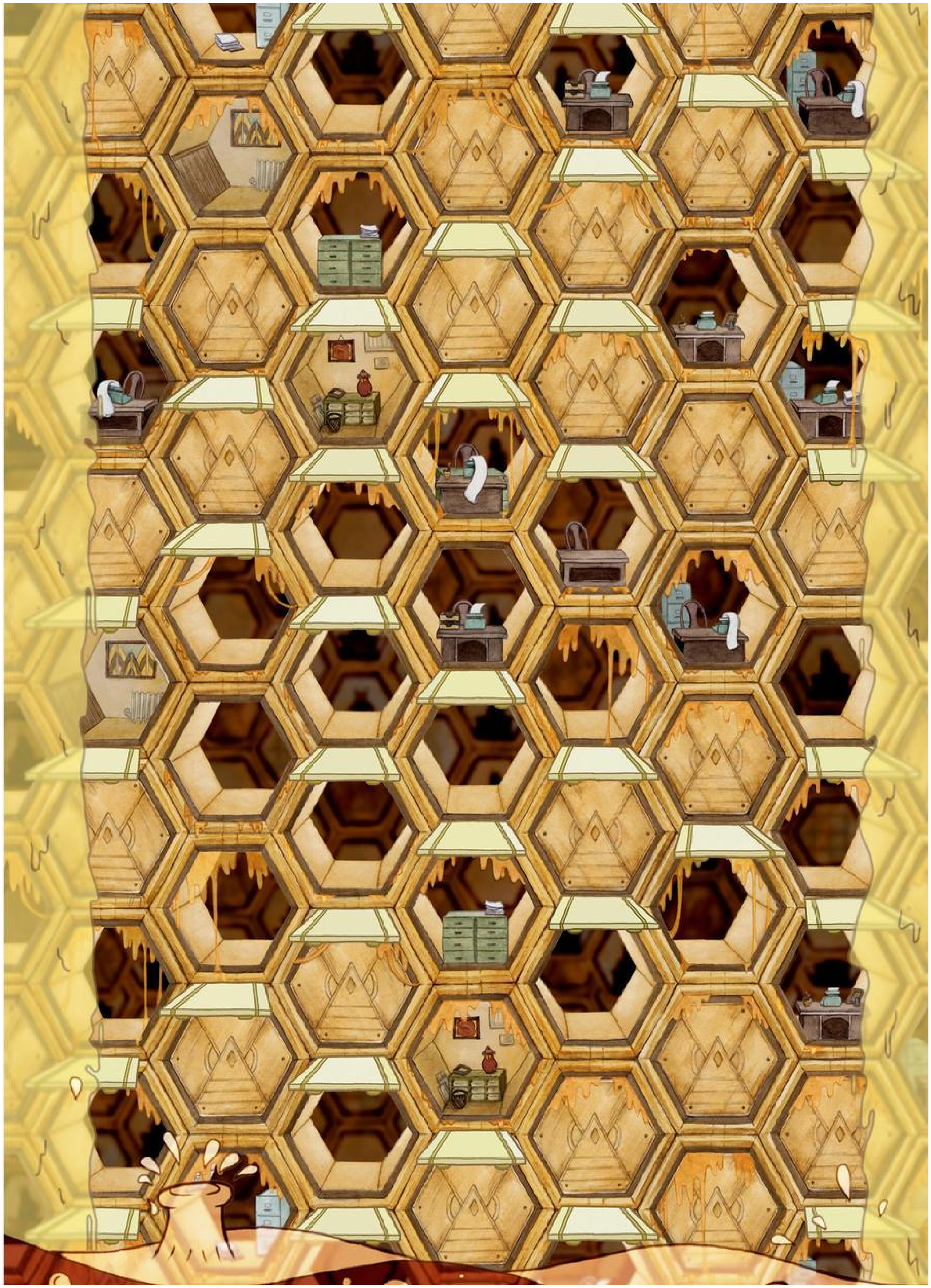










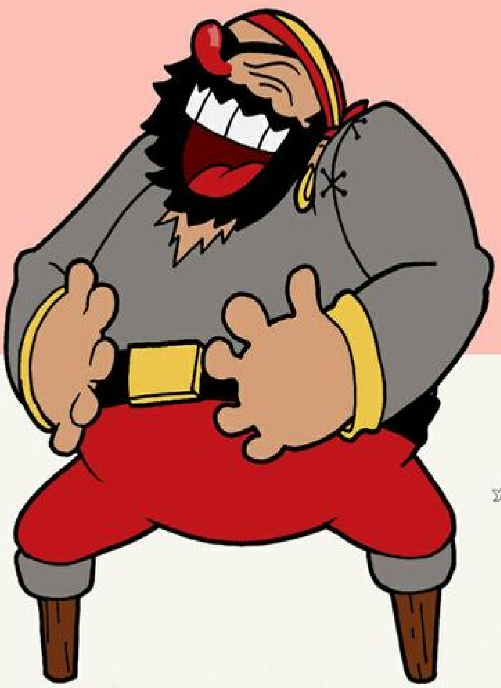


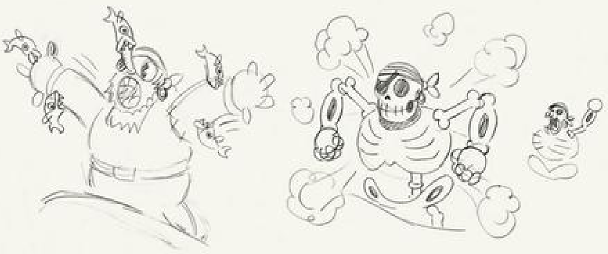
Captain Brineybeard
in
"SHOOTIN N' LOOTIN"

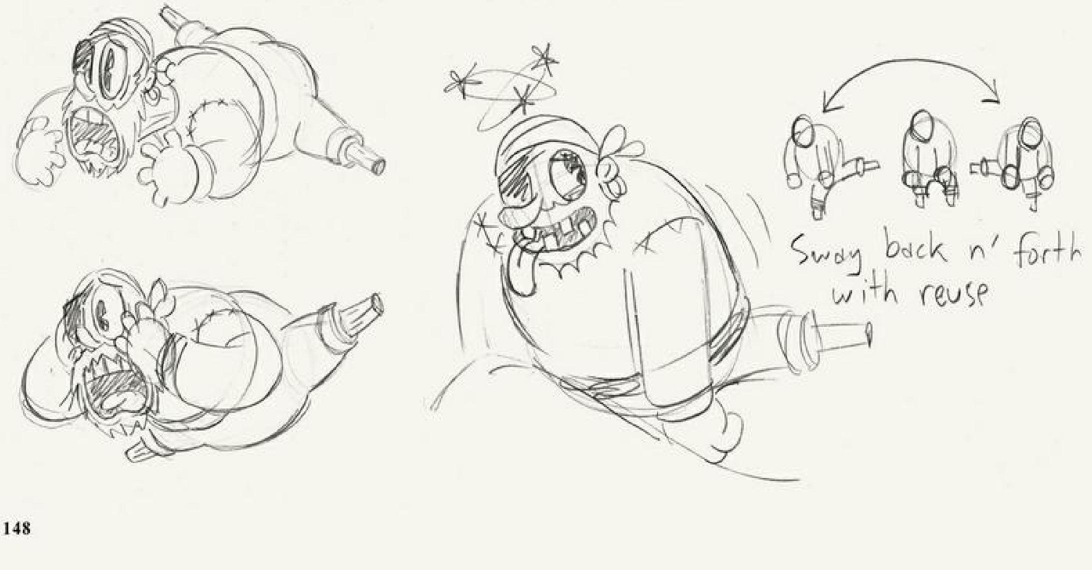
NEAR THE TROUBLED DOCKS off the coast of Inkwell Isle Three resides *Cuphead*'s lone pirate, Captain Brineybeard. The Captain holds a special place in *Cuphead*'s early development history because, while he wasn't the very first boss developed (that award goes to Goopy Le Grande), his was the fight where the "*Cuphead* Style" of combinatorial hazards fully came together. By taking the constant threat of the smashing barrel lingering above and mixing with it a variety of procedurally spawned sea creatures with different attacks, directors Chad and Jared Moldenhauer iterated on this fight over and over to develop what would become the modus operandi for *Cuphead*'s gameplay.

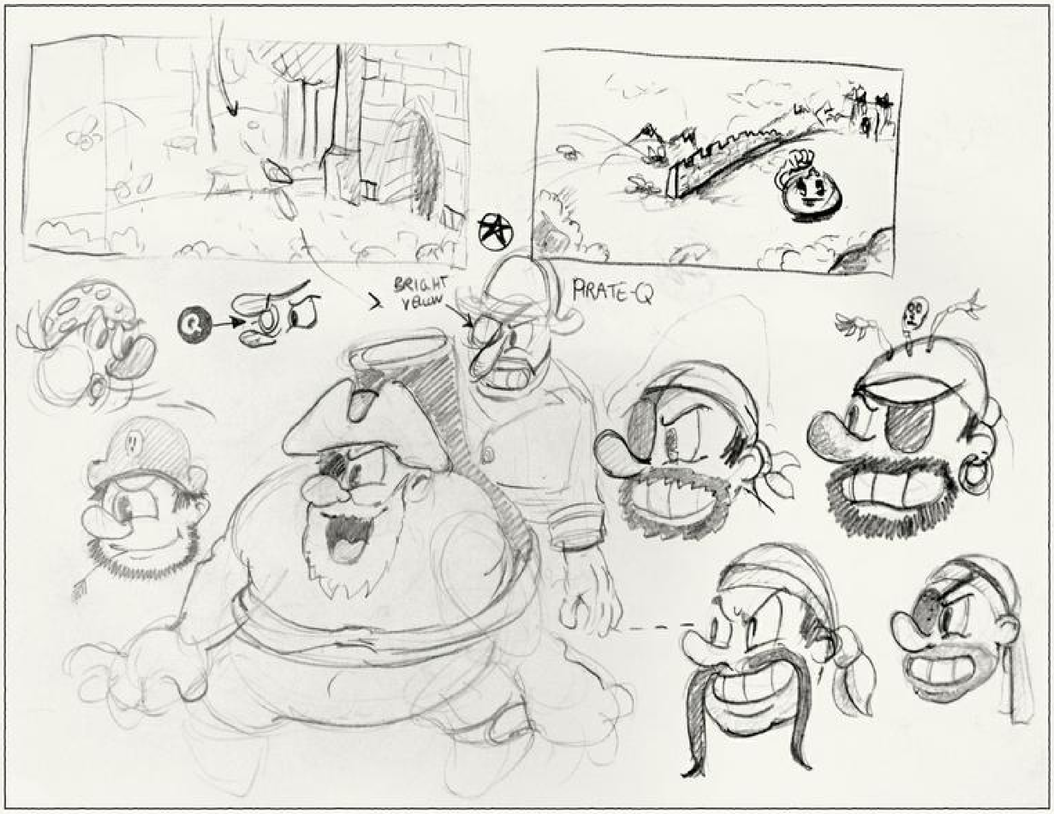
Captain Brineybeard was also where we tested how many homages, references, and thematic nods we could pack into a single character and scene. The Captain, animated by art director Chad and animator Thomas "Smo" Smolenski, references Popeye's Bluto and the Pirate from *Felix the Cat's The Goose Who Laid the Golden Egg*. His summoning whistle is a reference to *Final Fight*'s Damnd, while his control of sea creatures is a nod to the Disney's *King Neptune*.

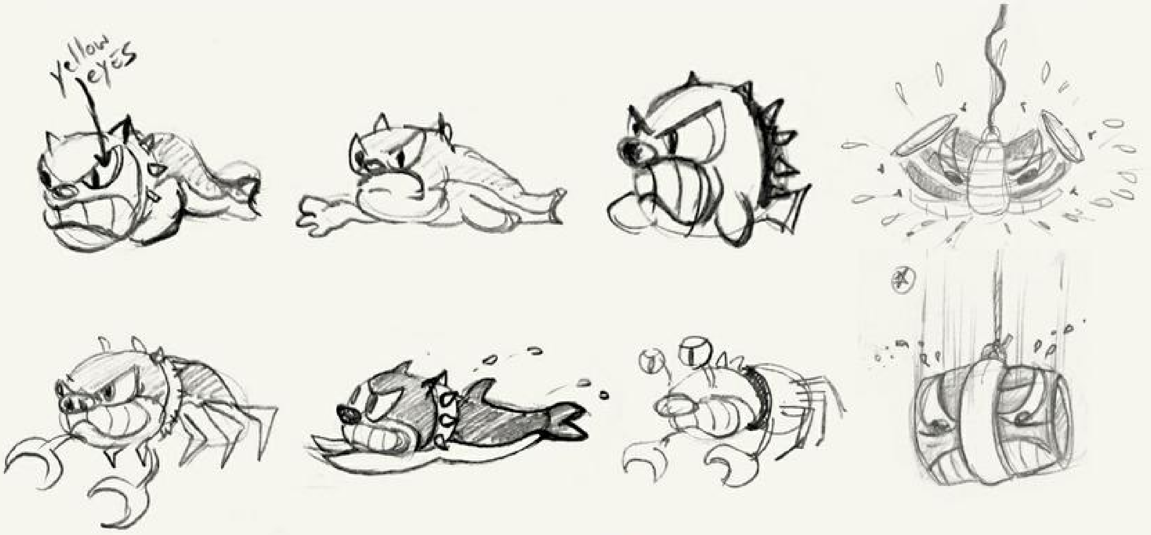
Altogether, Brineybeard is a tribute to our many influences and a symbol for just how much adventure one pirate can have. How else would he have two peg legs?

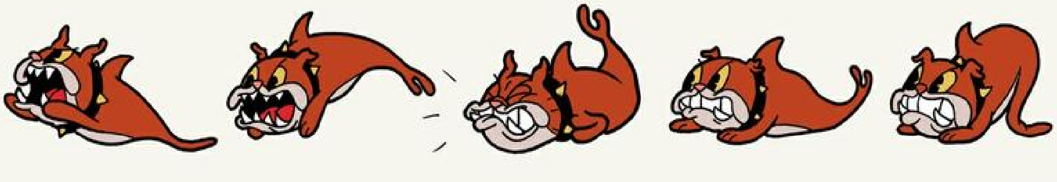






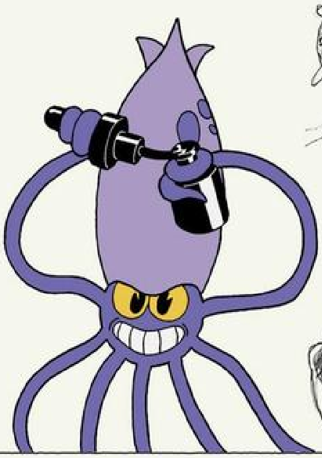

BRIGHT YELLOW
PIRATE-Q

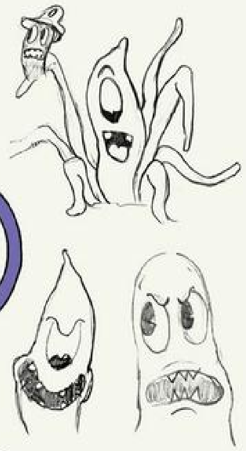

yellow eyes

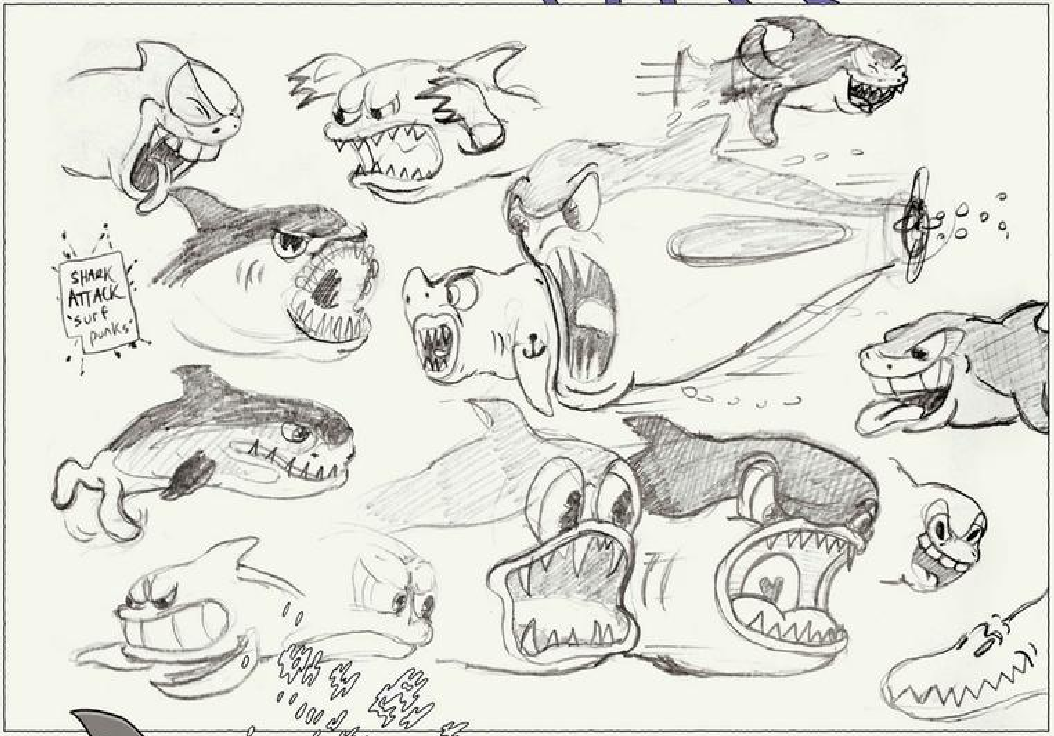


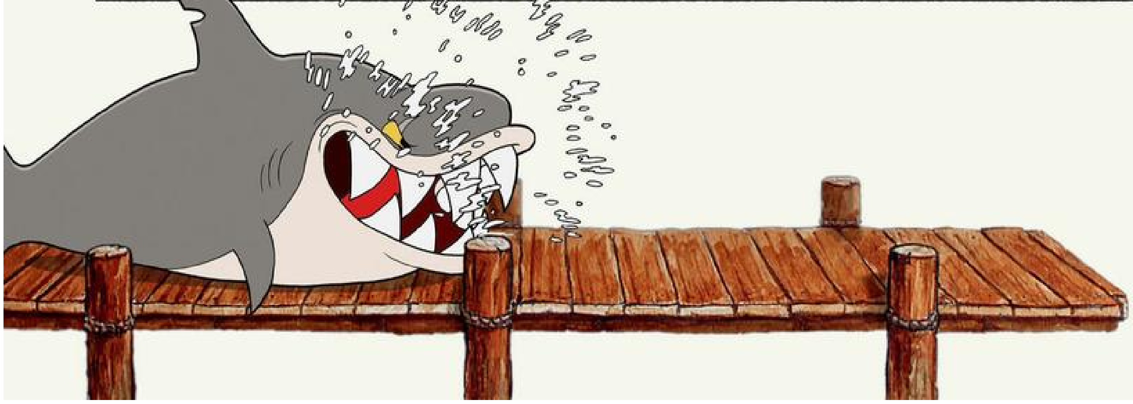
"Yer skills be like me buried treasure . . . just a myth!"

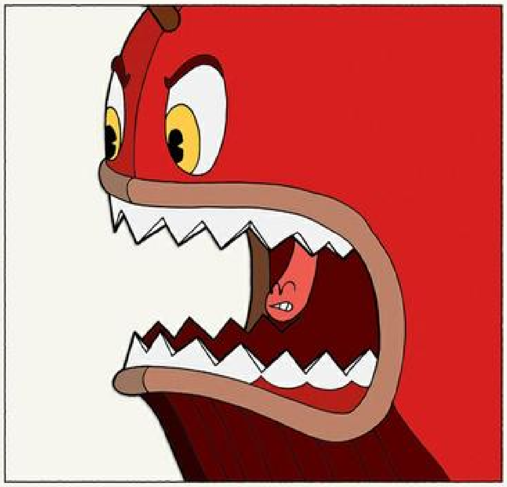
Each of Captain Brineybeard's summoned sea creatures started out as a specific gameplay element for controlling the screen space. The shark, a visual nod to *Betty Boop's Life Guard* and *S.O.S.* shorts, was made to draw the player closer to the ship, risking crossing paths with the barrel. The squid, holding an inkwell commonly used as an end plate image for Fleischer's movies, created a frantic attack in the center of the screen. Finally, the dogfish, whose death animation is an obscure reference to Sega's *My Hero* bulldog enemies, create a threat along the bottom of the screen, drawing the player's eye away from the looming top barrel. Together, these synthesize to force the player to constantly keep shifting their focus to different parts of the screen, intensifying the action.

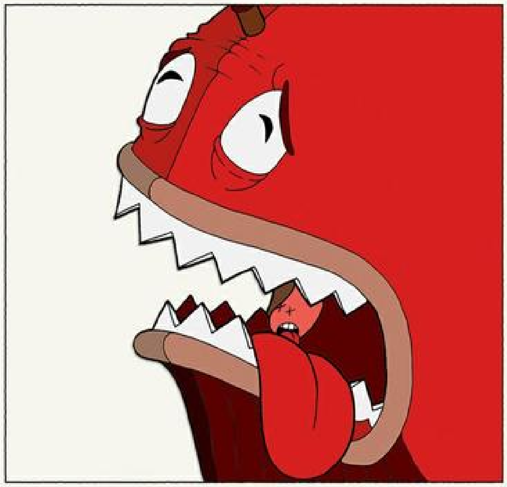


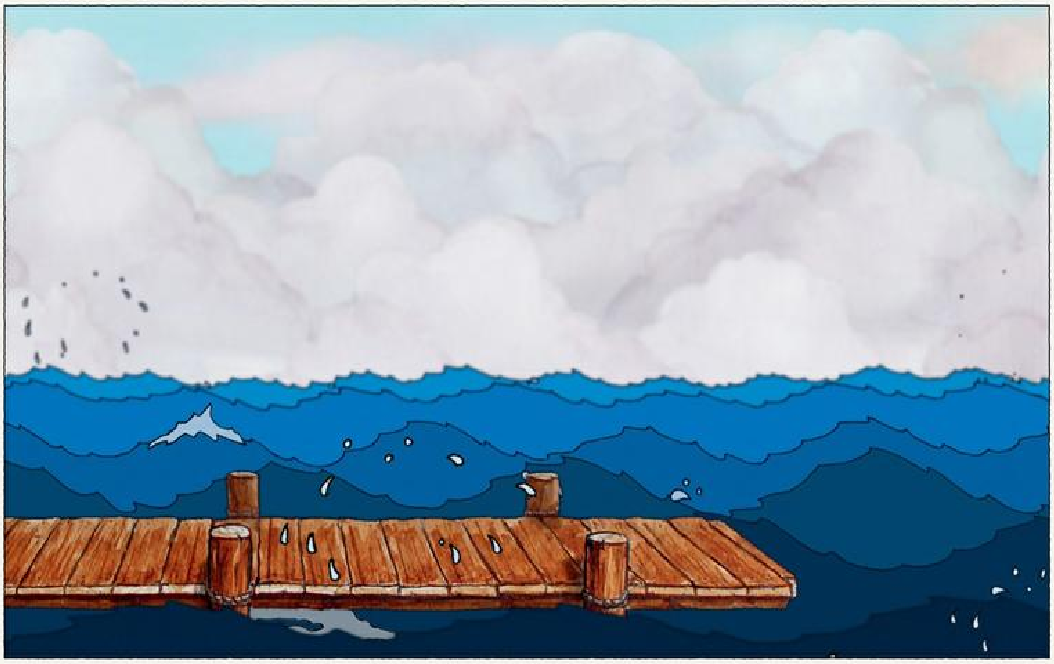










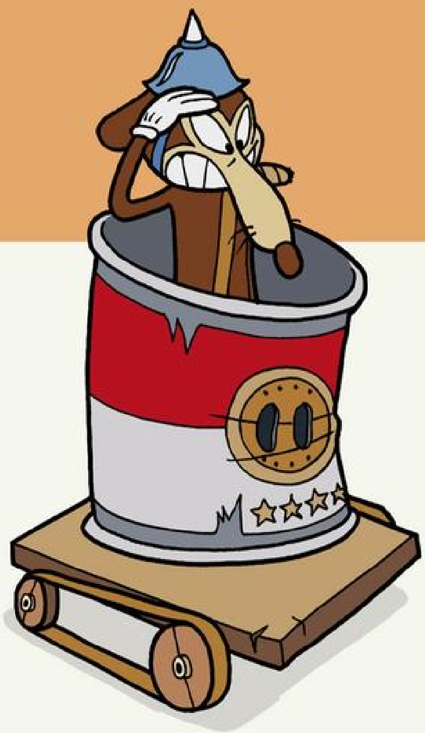


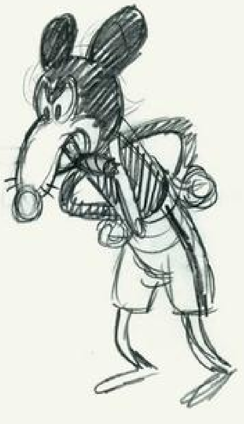
Shootin n' Lootin Background

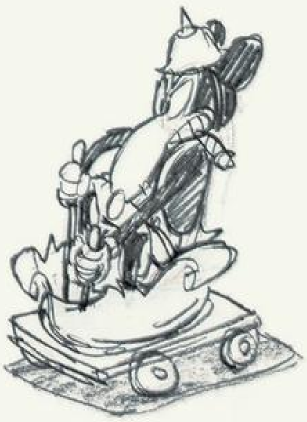
THE FIGHT ON THE DOCKS, with pillowy-soft clouds passing in the distance and raging rapids below, is the only remaining painting from art director Chad Moldenhauer's original prototype backgrounds that stayed for the final game. Much was learned in blocking out this stage, and as the fight with the dastardly pirate moved to phase three, we wanted an animal even bigger than the shark to represent the crescendo of this encounter. Since we already had a giant shark in phase two, we originally conceived of using a whale based on Monstro from Disney's *Pinocchio*, but thought it would be more visually amusing if the boat itself turned into a narwhal, with the figurehead on the bow as a makeshift horn. Coming to life and tossing the Captain into the ocean, who you can see splash in the background if you watch closely, the boat casts an imposing figure. Less imposing is the anthropomorphic uvula in his mouth you actually end up facing, until you witness his laser, itself a reference to an attack from the *Contra III* boss, Beast Taka.

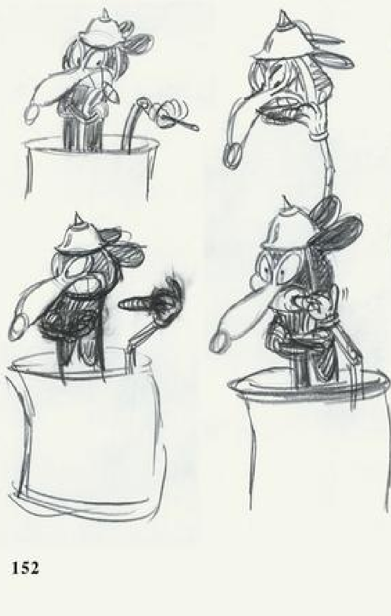
Werner Werman
in
“MURINE CORPS”

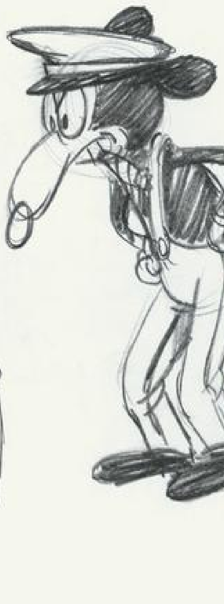
A MILITARY MASTER IN HIS OWN MIND, the can*tank*erous Werner Werman (pronounced “*Verner Vermin,*” of course!) is *Cuphead's* resident cartoon rodent. Werner gets his name from famed film director Werner Herzog, whose notoriously towering and stern personality we wanted to pay tribute to. Interestingly, though, the Murine Corps fight started as a battle against a tin can tank without anything inside of it, and as patterns and design ideas coalesced, we realized how much room there was to add personality to the experience with a character to lead the charge. A tinkerer who builds much of his arsenal from household items, Werner's character design was lightly influenced by many of the military rodents in the Ub Iwerks–animated Disney toon *The Barnyard Battle* (1929), as well as the 1936 short *Mickey's Rival*.

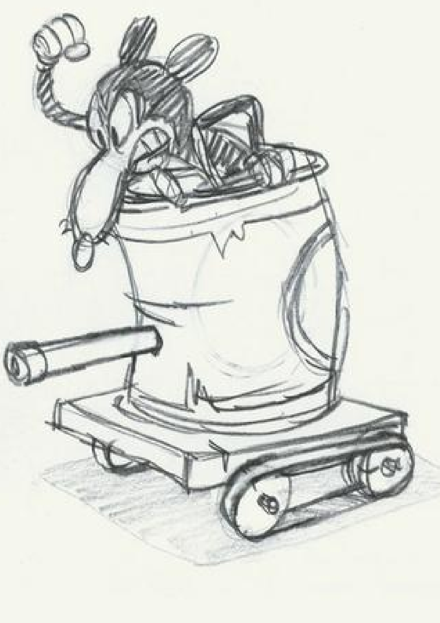


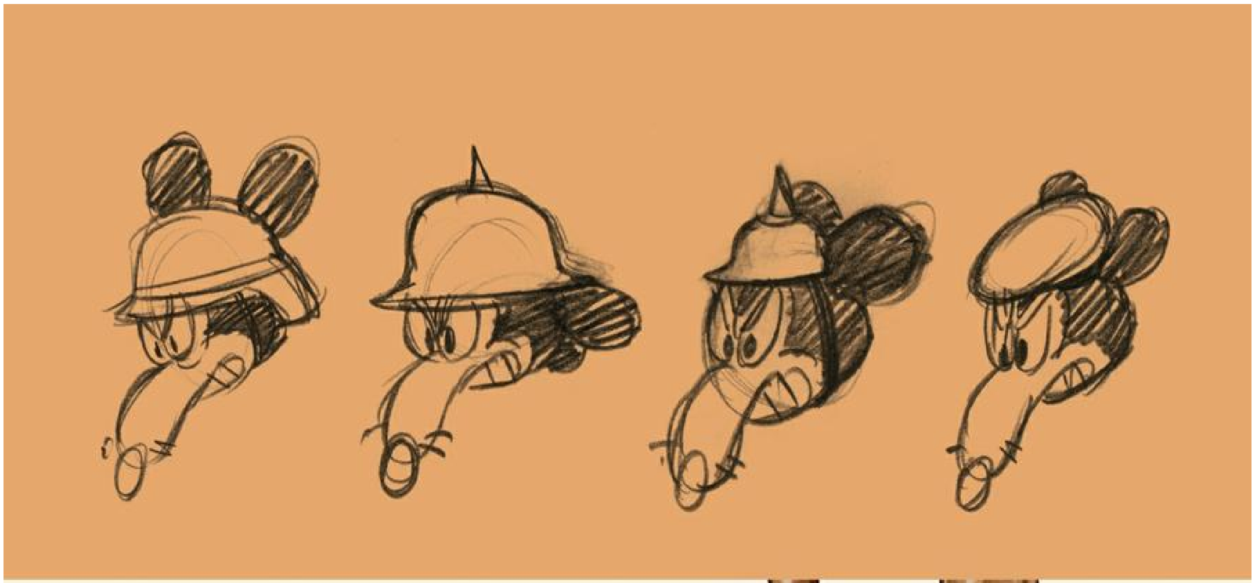


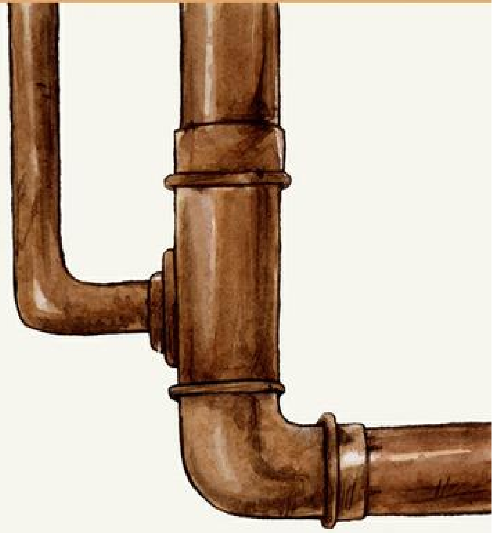


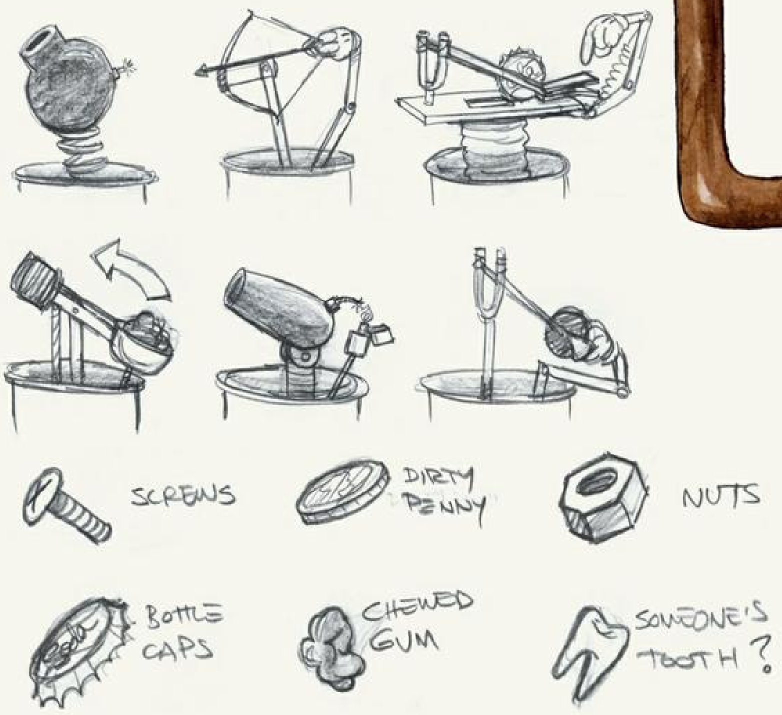




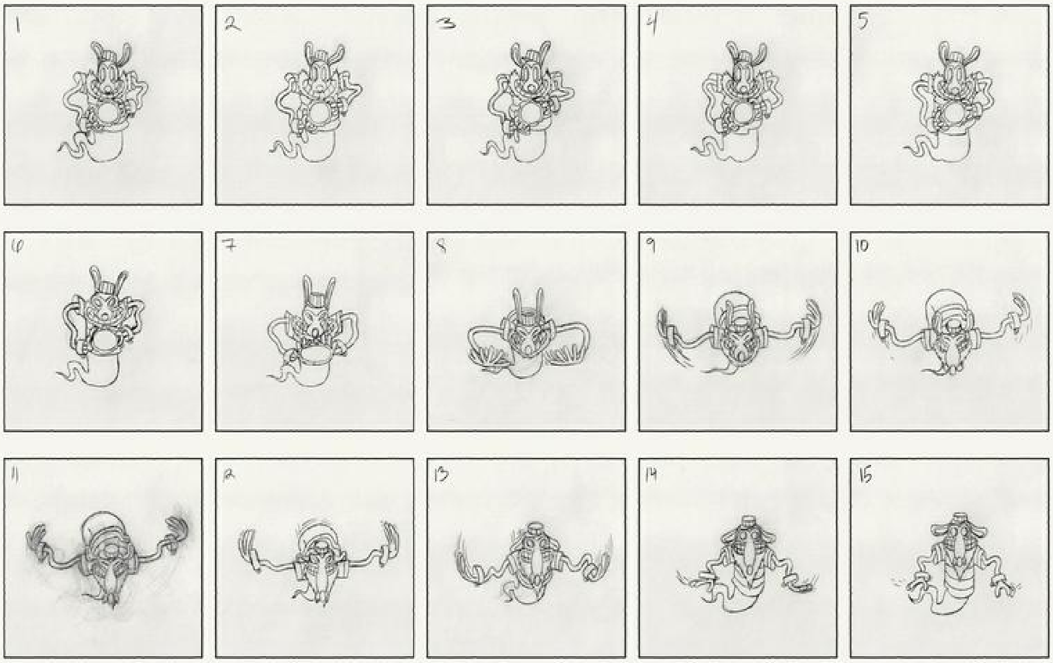


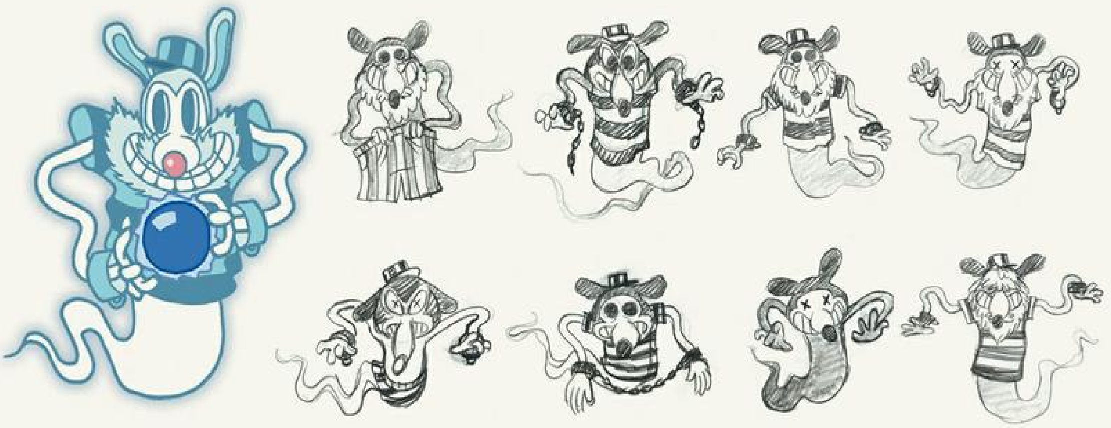





SCREWS
DIRTY PENNY
NUTS
BOTTLE CAPS
CHEWED GUM
SOMEONE'S TOOTH ?

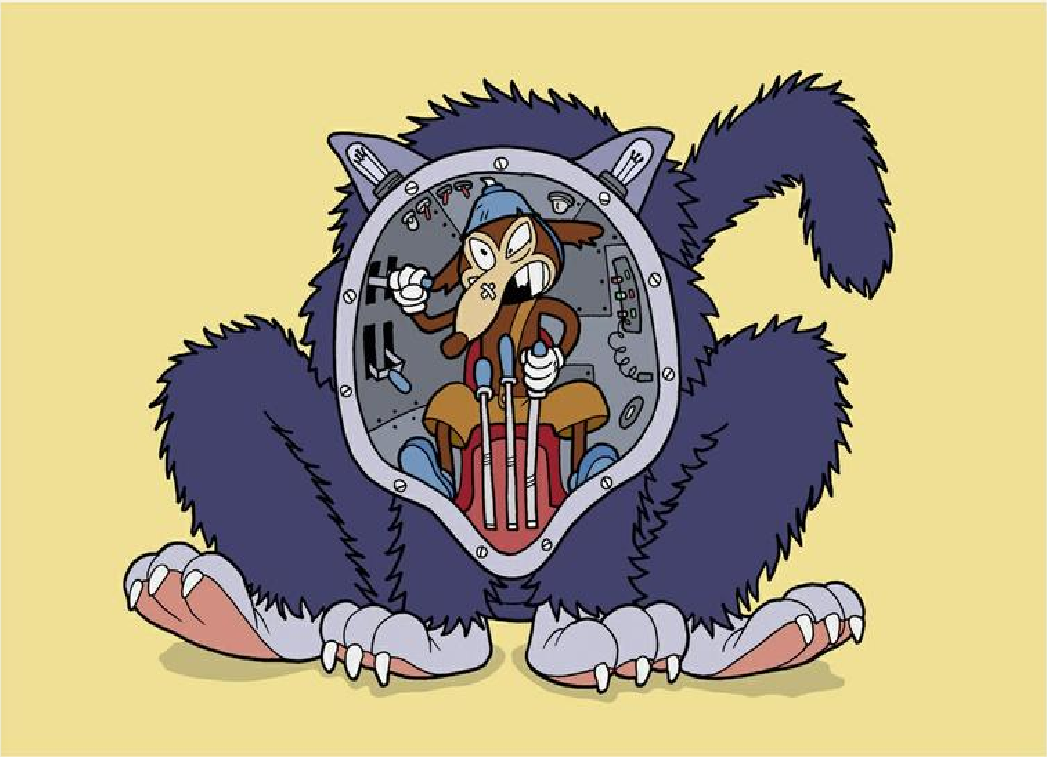
Concepts for the possible projectiles Werner Werman could launch at the player during the fight's first phase. In the top row, left, you can see the cannon we ended up using for his cherry bomb launcher, inspired by the simplicity of military machinery in early cartoons.

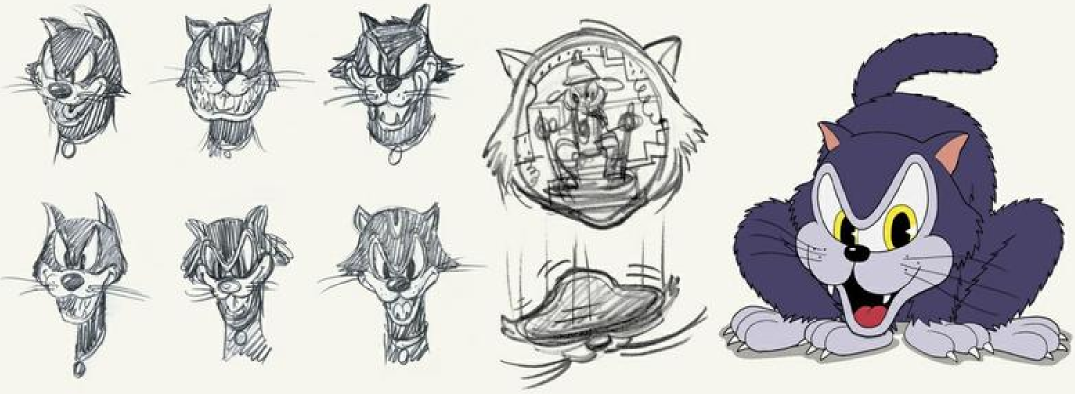




We always knew going into developing *Cuphead* that part of the appeal of embracing the 1930s cartoon aesthetic was unshackling ourselves from the constraints of what is and is not realistically possible, and hoped that would allow us to pepper in some ambitious visual gags and "wow!" moments throughout the game. It felt only right to shoot for one of these moments in Murine Corps, so we designed the third phase of the fight to upend the battle by taking Werner out of the picture completely and instead having players contend with a massive cat that bursts through the wall of the house to gulp up his prey. The "cat and mouse" dynamic was such a mainstay of early cartoons that it felt wrong not to include it here.

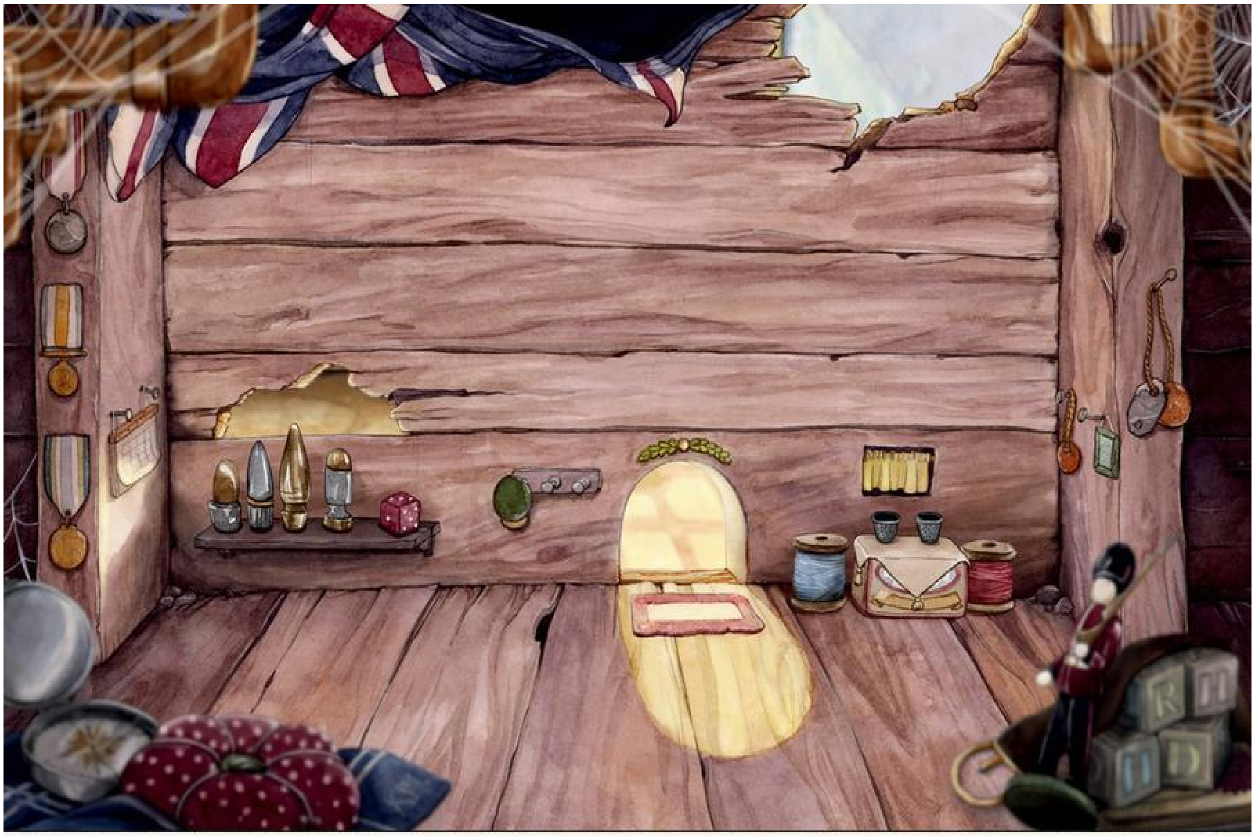
This meant changing our thinking about the size and scope of attack patterns for a third phase, though, as the attacks themselves would now be coming from something much larger. We didn't feel right having the cat (whose official name is Katzenwagen, incidentally!) breath fire or shoot projectiles of his own, so we instead offloaded this phase's projectile attacks to the spirits of mice still trapped inside Katzenwagen's stomach.

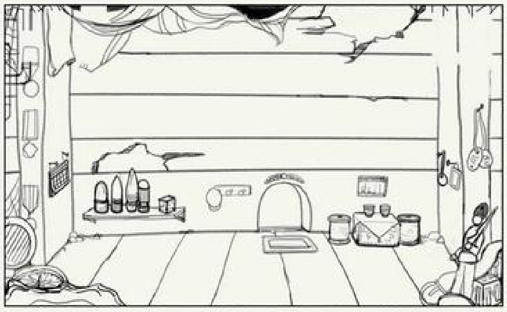


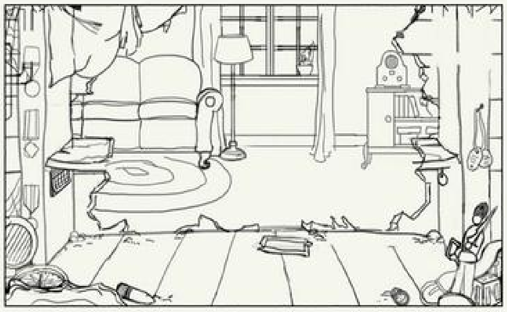


This is the kind of half-playful, half-macabre thing a lot of early toons would do—follow a question no one is really asking ("what happens to the souls of mice eaten by cats?") past any logical conclusion, and into the realm of the bizarre and eerie. Of the many concepts explored by animator Hanna Abi-Hanna, we leaned towards one that payed subtle homage to the prisoner of war non-playable characters from developer SNK's run-and-gun shooter *Metal Slug*—long bushy beards and all.

While visual touchstones for Katzenwagen include the felines from the 1939 Warner Bros. short *Naughty but Mice* and Fleischer Studios' Betty Boop toon *Morning, Noon and Night* (1933), there's ultimately a twist to the whole phase that we deliberately wanted to save until the end: Katzenwagen is not a cat at all, but rather another one of Werner's (less than reliable) inventions! This allowed us to further build Werner's personality, while also adding yet another layer of unsettling 1930s weirdness to the proceedings (why is he eating other mice!?).



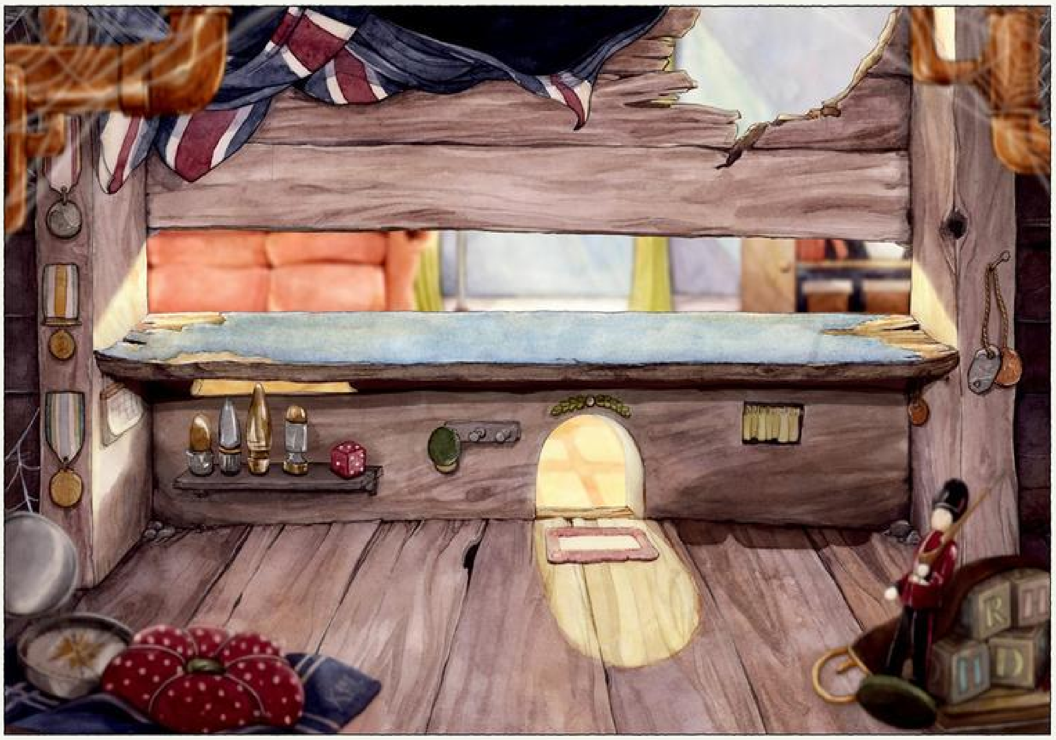


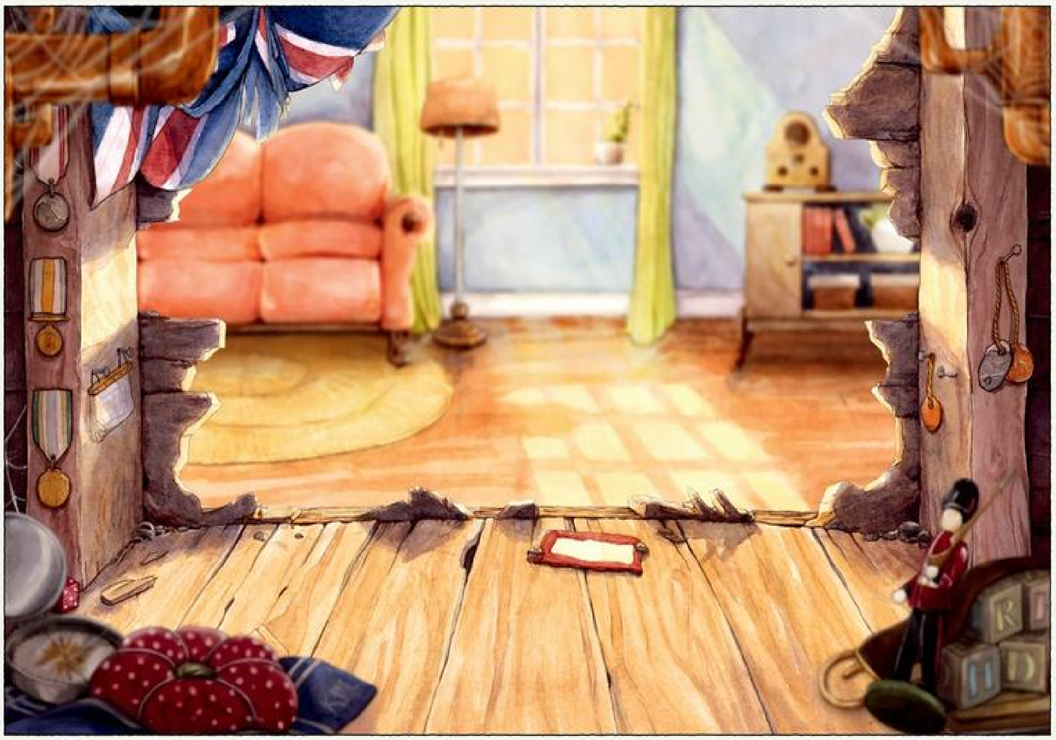


Murine Corps Background

IN A LEVEL SUCH AS MURINE CORPS, with a big gameplay twist, the background painting had to undergo the same transformation throughout the fight. Ultimately, this meant working with Caitlin to create multiple different paintings which represented the stage in various states of disarray on the way to the fully burst-open wall of phase three. We were lucky that a wealth of cartoons during the era had great, detailed depictions of that imagined world behind the wall, where a mouse might make its home. One in particular, a 1946 short named *Cheese Burglar* from Paramount Pictures' *Noveltoons* series, was one of the few places we dipped our toe into the 1940s for a visual reference.

Filling out Werner's abode in particular allowed us to sneak in a nod to developer Konami's 1988 classic *Super Contra*, which uses wartime medals to represent player lives. Also, in the spirit of game developers of the 1980s like Sega and Capcom, who would sneak eponymous references into their games, Murine Corps contains one of the earliest such MDHR references in Cuphead, with the play blocks in the foreground containing the letters M,D,H, and R.

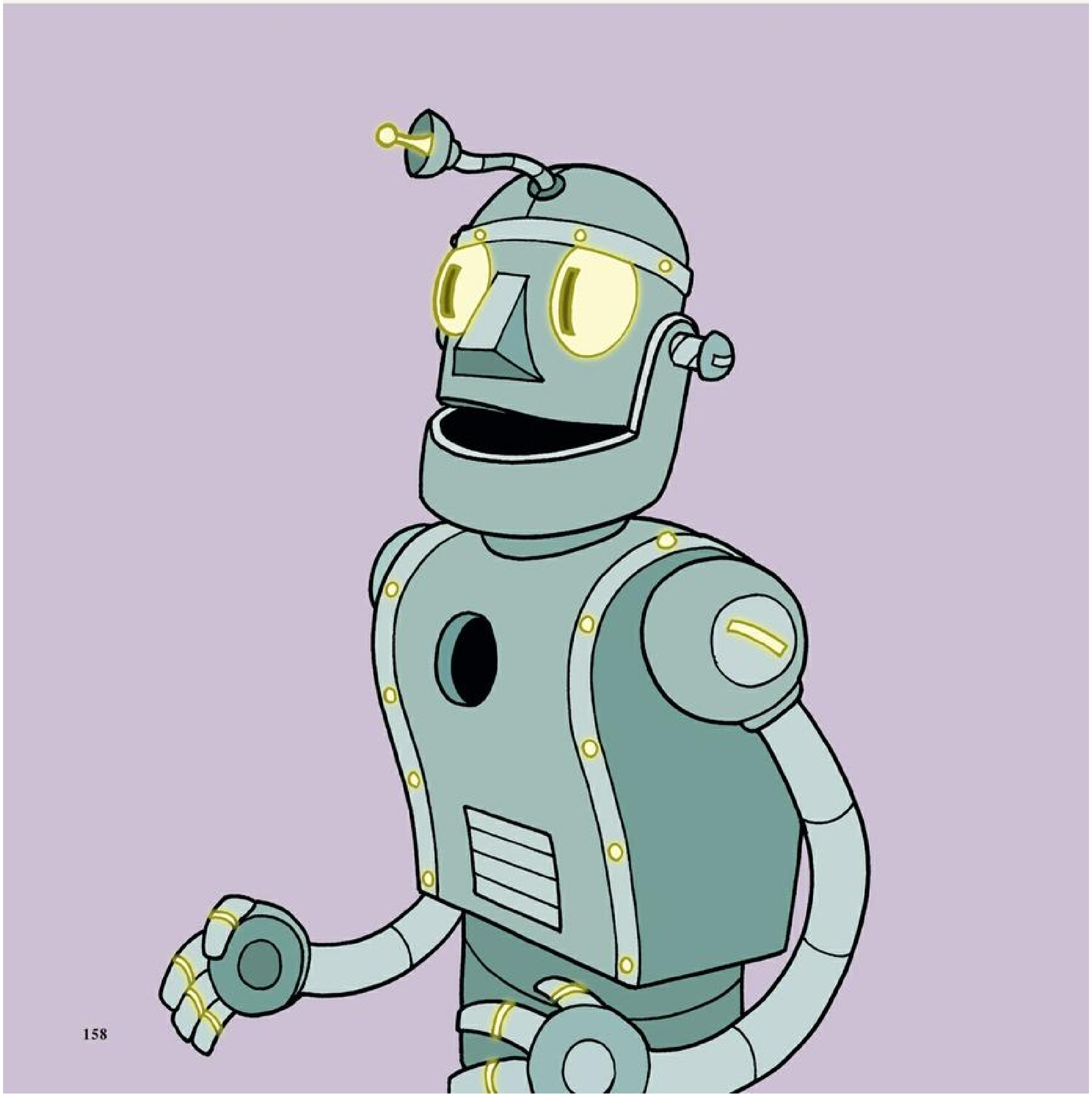




Dr. Kahl's Robot
in
"JUNKYARD JIVE"

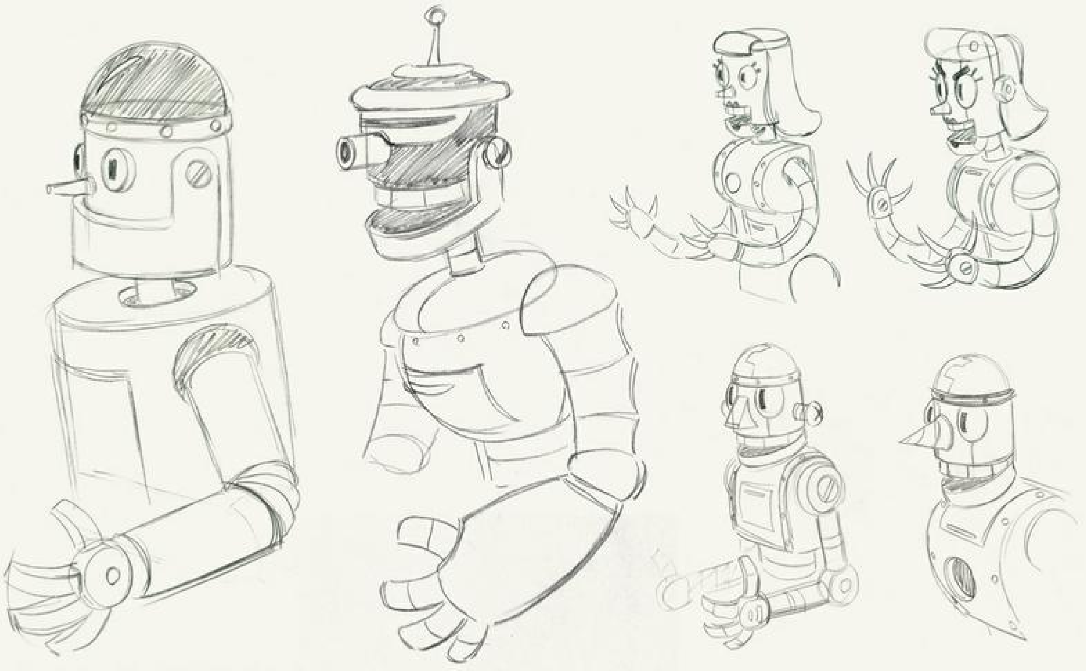
IMPECCABLY BUILT FROM only the finest metal scrap pillaged from the big city's ever-growing junkyard, Dr. Kahl's Robot stands tall as *Cuphead*'s most towering challenge yet. Piece by piece, players must deconstruct the space-age metal man while dodging laser beams, defensive fighter ships, and glowing bolts, finally gaining access to the power core—its robot heart!

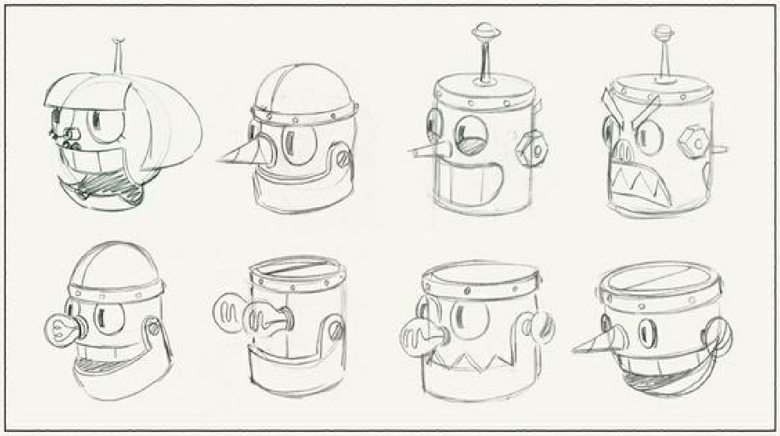
For the final "shmup" boss in the game, we wanted to change up the formula by having the entire first phase be a player-directed battle. With three independent sources of attack on the robot, which, upon being destroyed, unleash even more



devastating hazards, we wanted the player to have to make a plan for how to strike. Do you remove the fanned laser beam and deal with the six-way bolt attack or do you target the trap door emitting zig-zag space ships only to end up facing a bevy of homing missiles? We wanted the player to feel like they were chipping away at a barrage of enemies, only to find themselves in even deeper trouble.

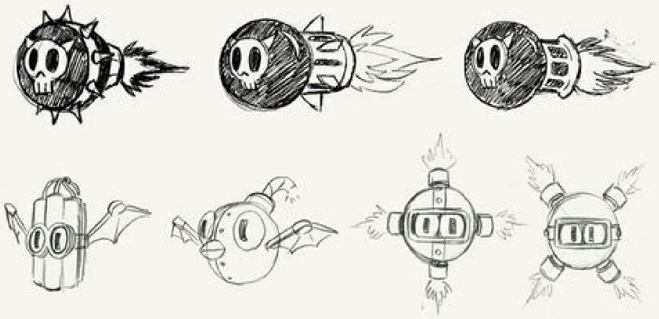
While developing the robot's visual design, we went through a number of different faces and body shapes to come to the final backpedaling form. For the face, we tested various concepts, some more hard-angled and futuristic, some more blank-eyed and vacant. We finally chose a form with larger eyes and more classically human features to be able to convey emotion best. We went with the noodly rubber hose arms, as they functioned best with the necessary attacks and paid direct homage to the animation style's namesake. For visual inspiration, we were most heavily influenced by the clockwork pugilist in the 1933 Disney cartoon, *Mickey's Mechanical Man*. We also took inspiration for various internal mechanisms from the shorts *Donald Duck—Modern Inventions*, *Betty Boop's Crazy Inventions*, and *Bimbo—The Robot*.

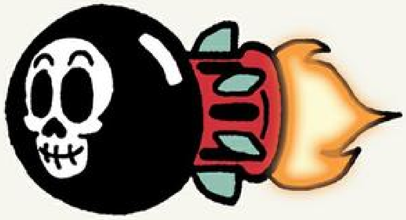


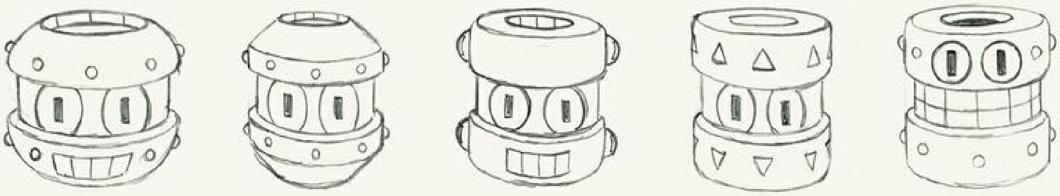


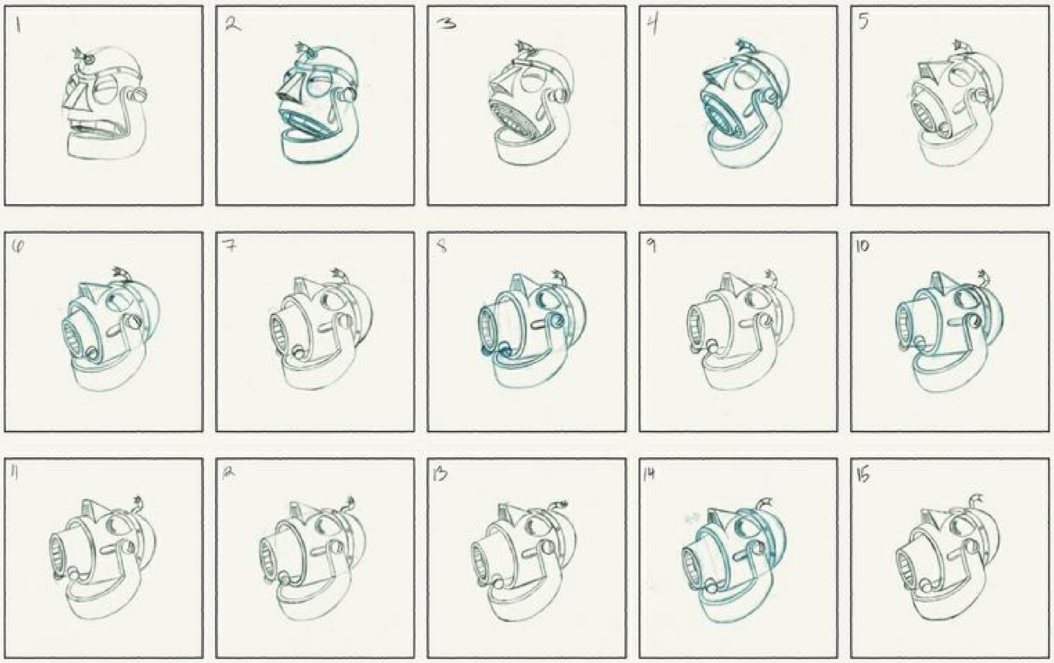
Pencil sketches by animator Jake Clark, from the early concept phase of the robot. Early on, we toyed with the idea of making the robot distinctly female, but we eventually decided to go with a more genderless form.

*"I have the perfect equation
to hinder yer evasion!"*





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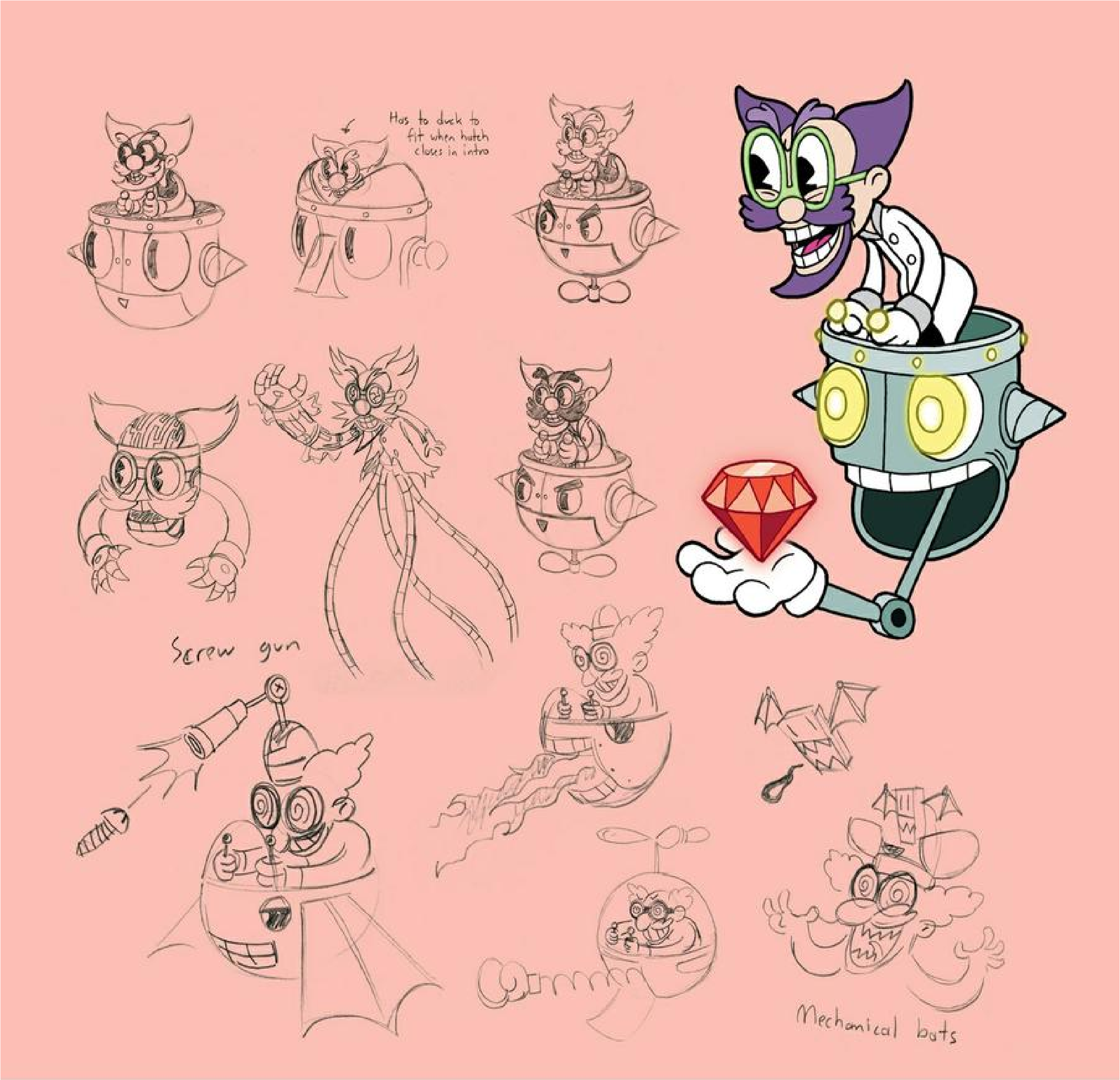
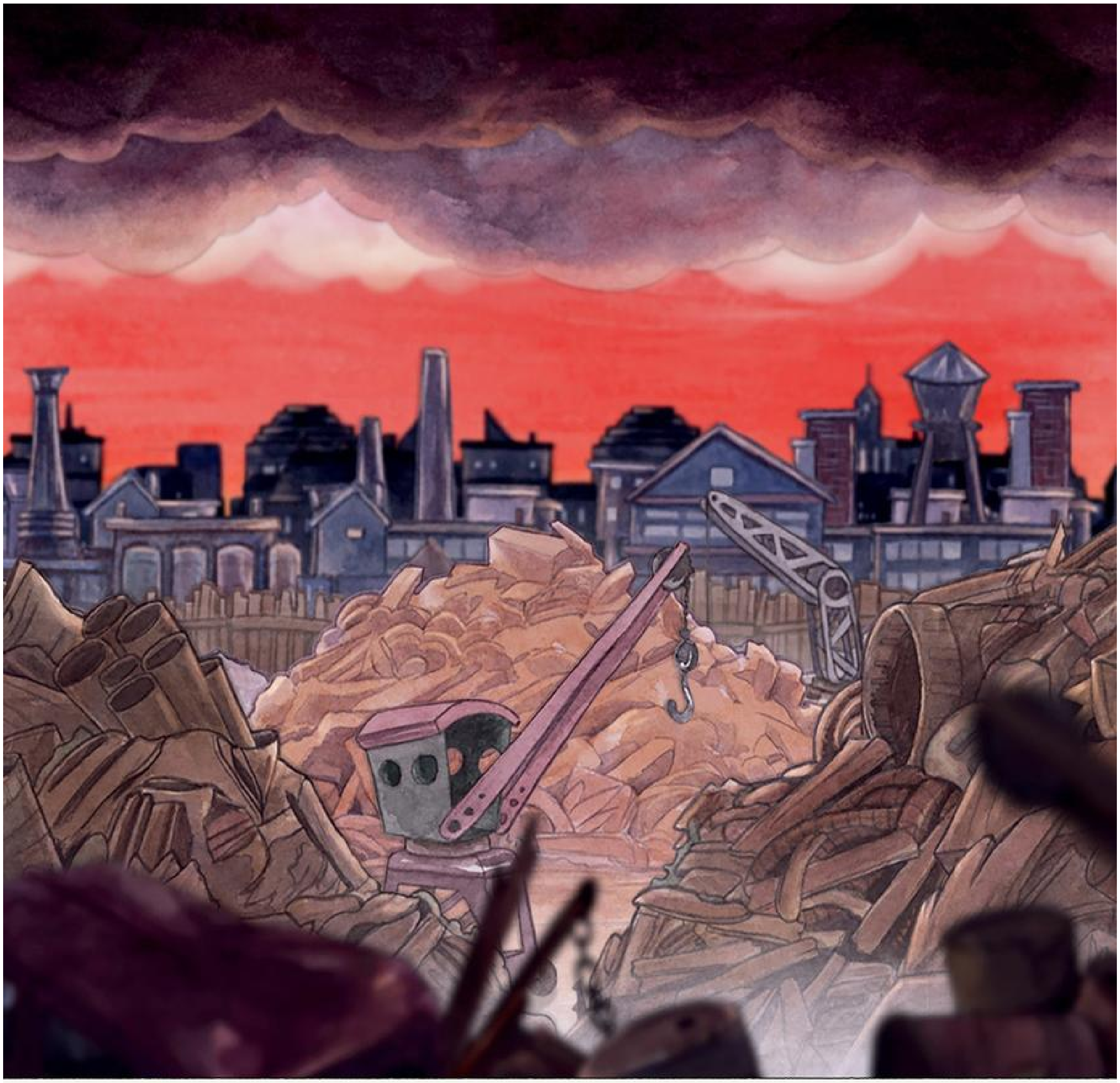

Has to duck to fit when hatch closes in intro
Screw gun
Mechanical bats

Dr. Kahl

BEHIND EVERY GIANT ROBOT run amok, there's a mad scientist inventor, and Dr. Kahl, named after the legendary animator Milt Kahl, is *Cuphead*'s own. As this was the final shmup stage in the game, we felt we could finally unleash a true bullet-hell barrage against the player as the ultimate challenge. An homage to classic evil video game doctors like *Mega Man*'s Dr. Wily and *Sonic the Hedgehog*'s Dr. Robotnik, we used the robot's head as a makeshift flying pod to complete the tribute.

Many of the bad doctor's inventions are references to classic 16-bit shmup games as well. The skull visages in the explosions of the homing bombs, which are adorned with the Dr. Kahl's own plumage, are a reference to the screen filling explosions in Toaplan's Sega Genesis shooter *Truxton*. The spinning crystal source of all of the projectiles in phase three is a nod to the Chaos Emeralds from *Sonic the Hedgehog* games. Finally, the electrified flying walls were inspired by the Seven Force boss fight in developer Treasure's *Gunstar Heroes*.

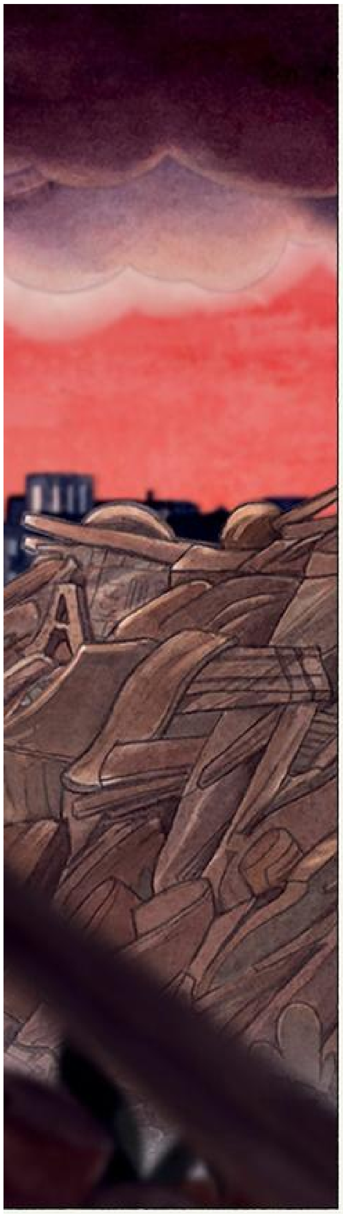


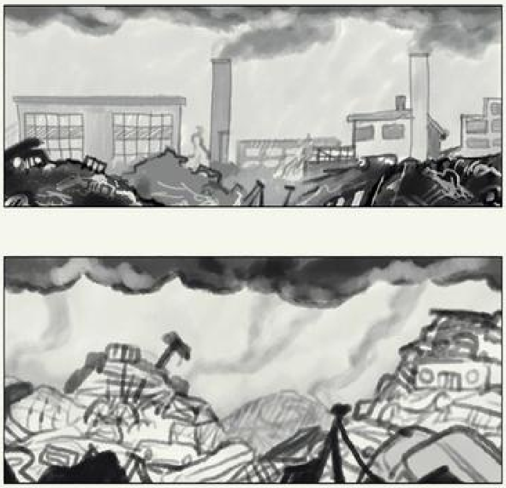
Junkyard Jive Background

THE JUNKYARD MAY NOT SEEM like the usual place for a brilliant scientist to design his inventions, but we wanted to convey a little back-story to Dr. Kahl through his stage. Unable to find the parts he needed in the city, Dr. Kahl brings his robot to life among the refuse cast off from the other citizens.

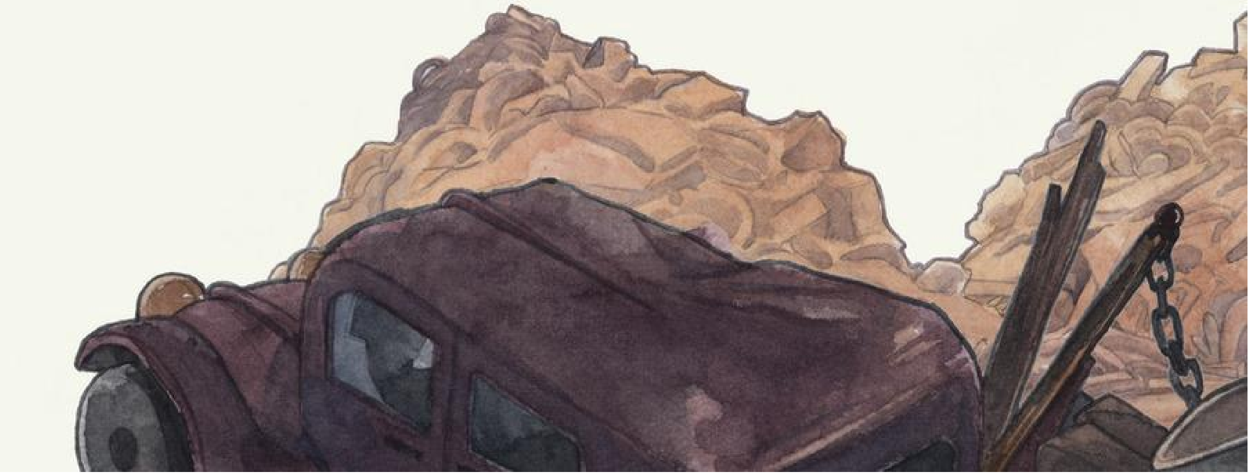
For this background, painter Caitlin Russell started with color mood references. We strive to give each fight its own palette, and we found some unique and ominous pink and gray tones in games like *Castlevania: Dracula X* and *Shadow Dancer*. We mixed that grimy palette with the scrap-yard-refuse detailing from the run-and-gun classic *Contra: Hard Corps* for the Sega Genesis, then put our own 30s spin on it.

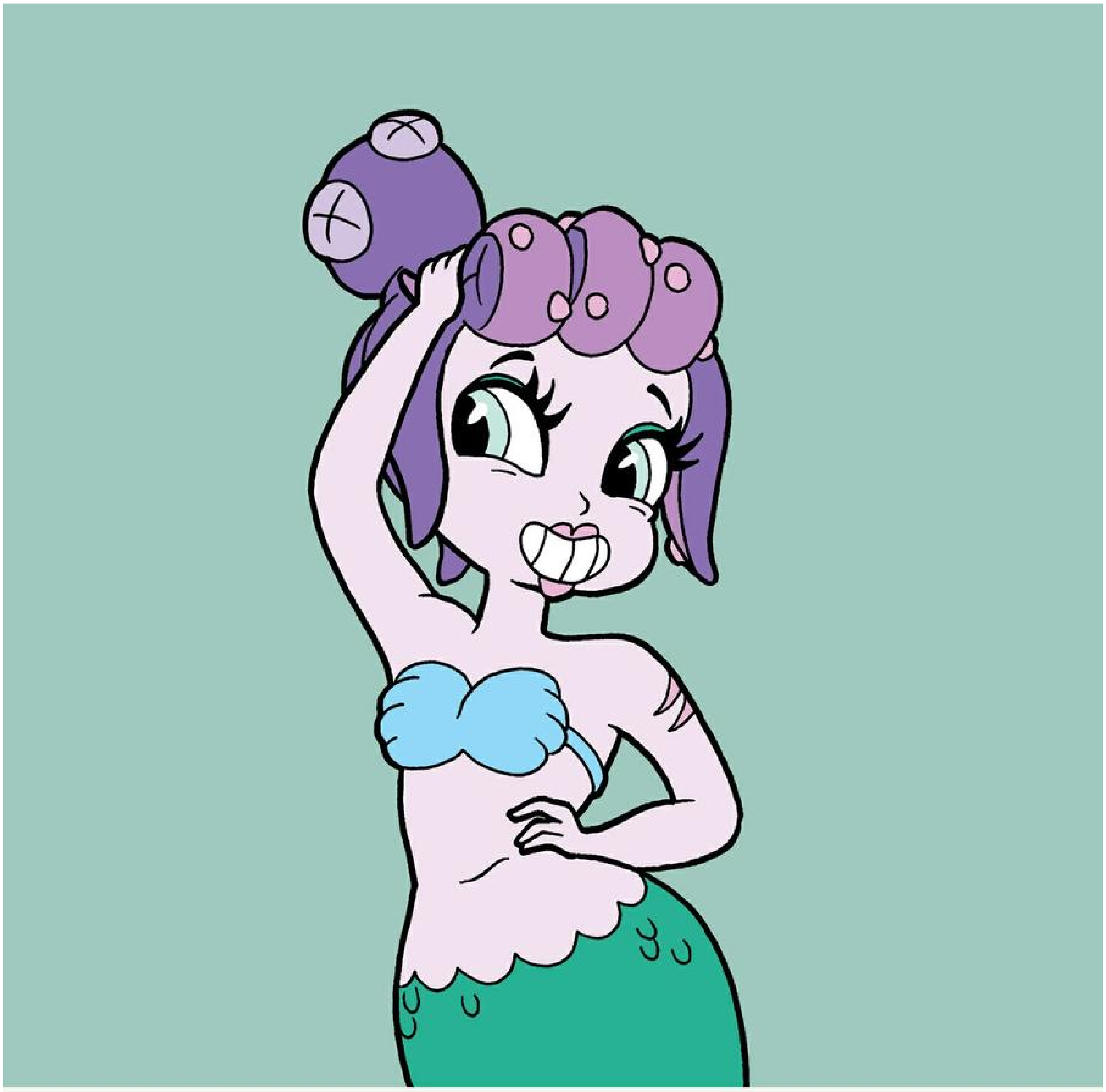
Hidden in the piles of rubbish, we snuck in Easter egg references to a number of games, including the Sega Master System games *Zillion* and *Phantasy Star*, as well as *Target Earth* for the Sega Genesis, and even *Mario Kart* for the SNES. Some are pretty sneaky, so you'll have to look hard to find them!





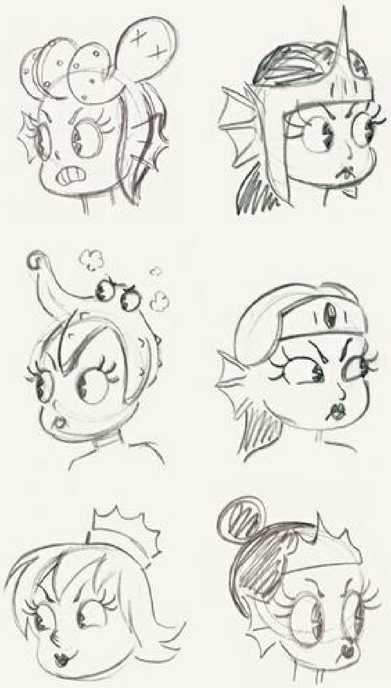
Early sketches of the junkyard by Caitlin Russell. While the actual city depicted in Inkwell Isle Three appears bright and friendly, when viewed from Dr. Kahl's junkyard, it looks ominous, grimy, and polluted. Cuphead*'s cartoon world allows us to depict the city the way Dr. Kahl sees it, not necessarily how it actually is.*

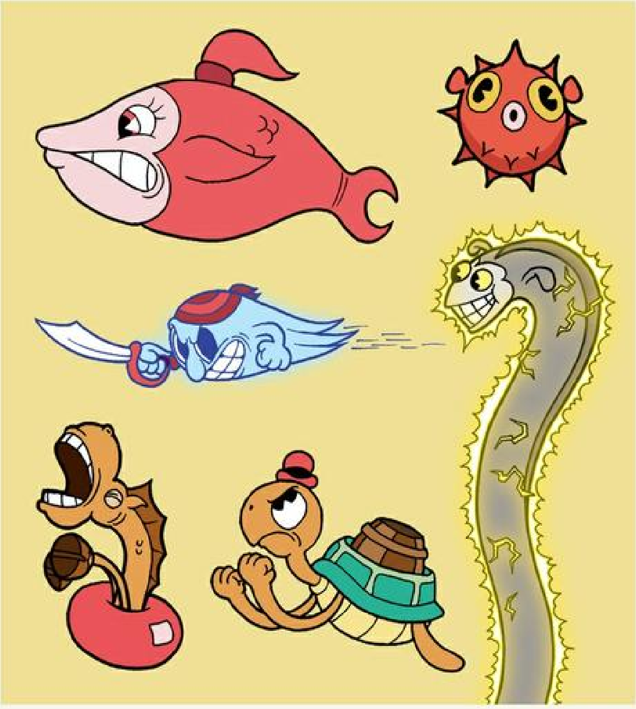


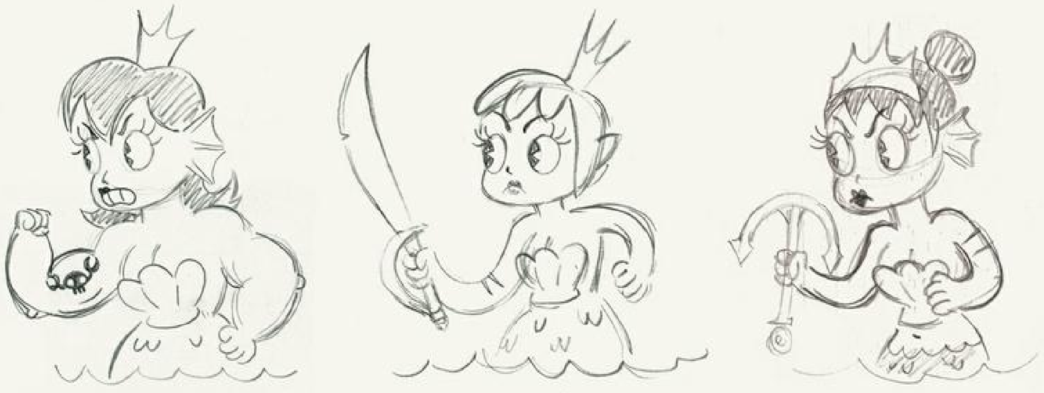


Cala Maria
in
"HIGH SEAS HI-JINX!"

THE PLAYFUL (BUT NOT TO BE TRIFLED WITH) Cala Maria is the most beautiful creature in all the Inkwell Isles, but when necessary, she can turn into a powerful gorgon to protect the loyal aquatic creatures that follow her. A play on the word "calamari," this formidable foe came out of our desire to have one of *Cuphead*'s "shmup" plane battles take place in a water-themed level. Initial conceptual ideas ranged from a series of octopus kings and queens that fired puffer fish bombs to wiry old men of the sea, but animator Jake Clark's explorations of a mermaid stood out as soon as we saw them. From there, Cala became our outlet to celebrate some of the most

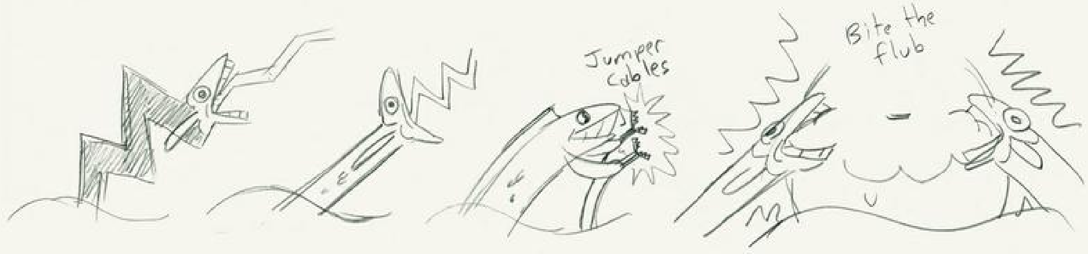






famous fun-loving female characters from classic animation, including the iconic Betty Boop and *Popeye*'s leading lady Olive Oyl. Additional reference points included Disney's 1938 Silly Symphony short *Moth and the Flame*, and game developer Konami's massive screen-filling mermaid boss from *Fantastic Parodius* (known outside Japan as *Fantastic Journey*).

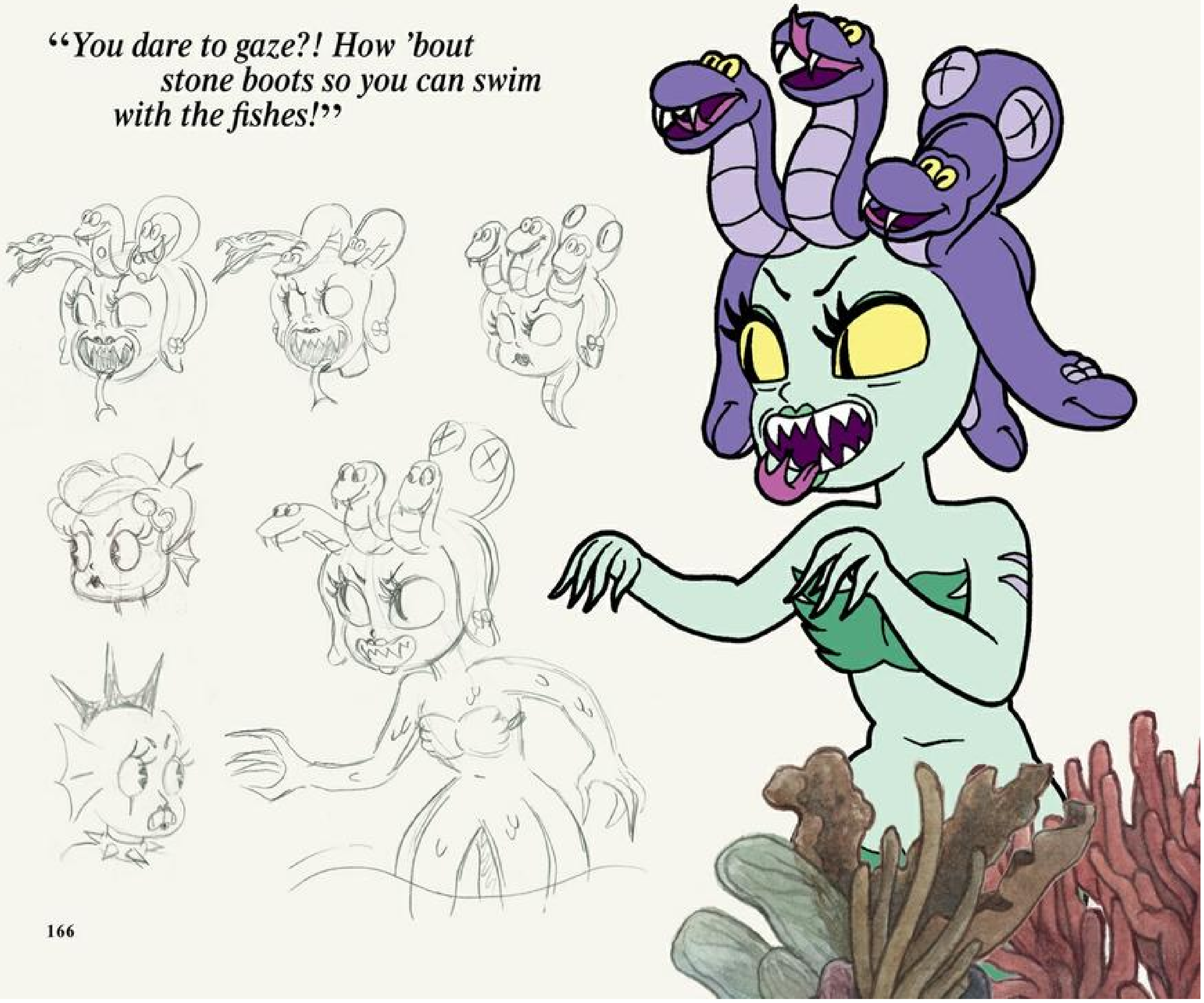
Once we honed in on the idea of the character of a mermaid, Jake set to work giving Cala a sense of cartoon life and personality that would have been a hallmark of the 1930s, and it's out of that exploration that her signature "octopus made of snakes" hairdo emerged. With so many wild ideas to play with and pursue, using the pre–Hayes Code 1930s as a palette could be both freeing and daunting, as it sometimes turned *Cuphead*'s concept phase into a process of sifting through dozens of equally viable ideas. Luckily, like the idea of a mermaid itself, the octopus hairdo clicked right away, and the rest is history!

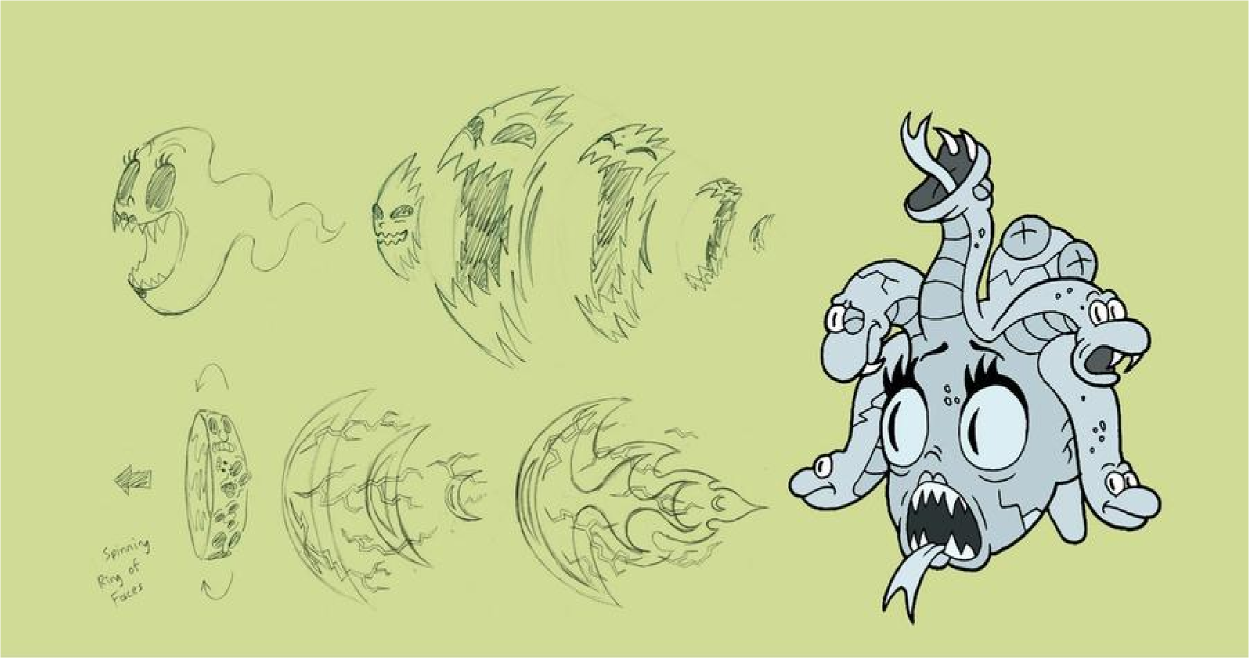


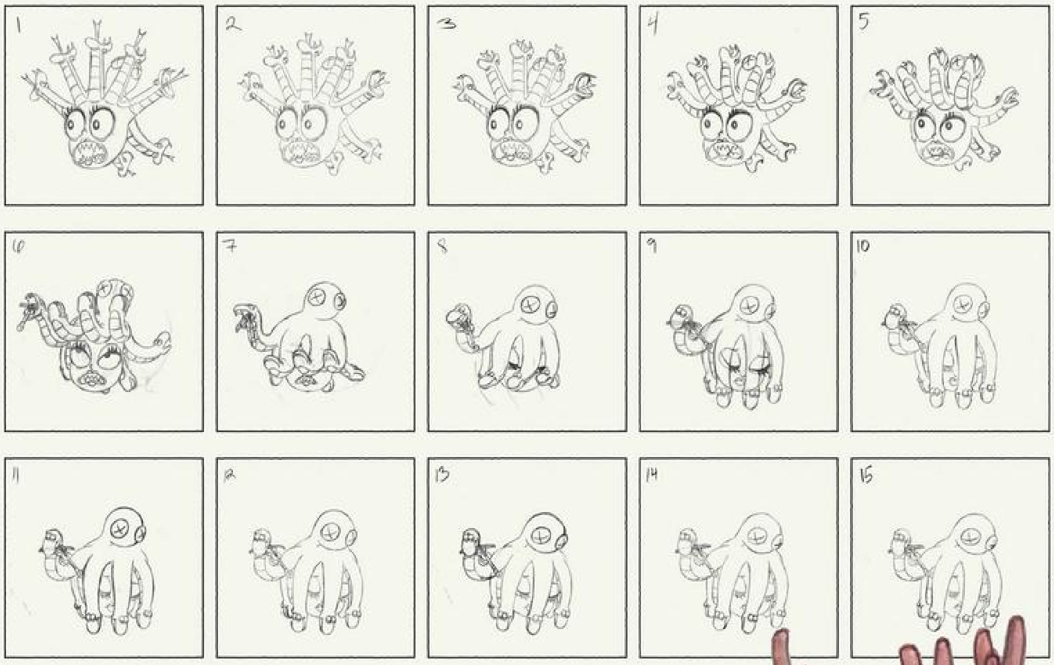
Internally codenamed "Merdusa," Cala Maria's transformation into an energy beam–blasting terror capable of turning you to stone is a fan-favorite moment in the game. Throughout the design process, there were classic patterns and attacks we knew that we wanted *Cuphead* to have, and a dangerous "stun lock" moment was one of them. With Cala's octopus tentacles already concepted as eels for this morph, we knew this was the right place to integrate a stun lock, and we ran with it!

If you look closely, you can see some undertones of the same attitude and expressiveness in Merdusa as in Madame Medusa from *The Rescuers*. A film far ahead of the time we were looking to pay homage to (it was released in 1977), we pushed to imbue some of this influence not as a nod to the 70s, but instead out of affection for Madame Medusa's directing animator, Milt Kahl. Considered to be one of the "Nine Old Men," Kahl was one of Disney's earliest supervising animators, with a legendary style and unbelievably influential body of work to which animation as an art form owes a great deal.

> ***"You dare to gaze?! How 'bout stone boots so you can swim with the fishes!"***




Spinning
Ring of
Faces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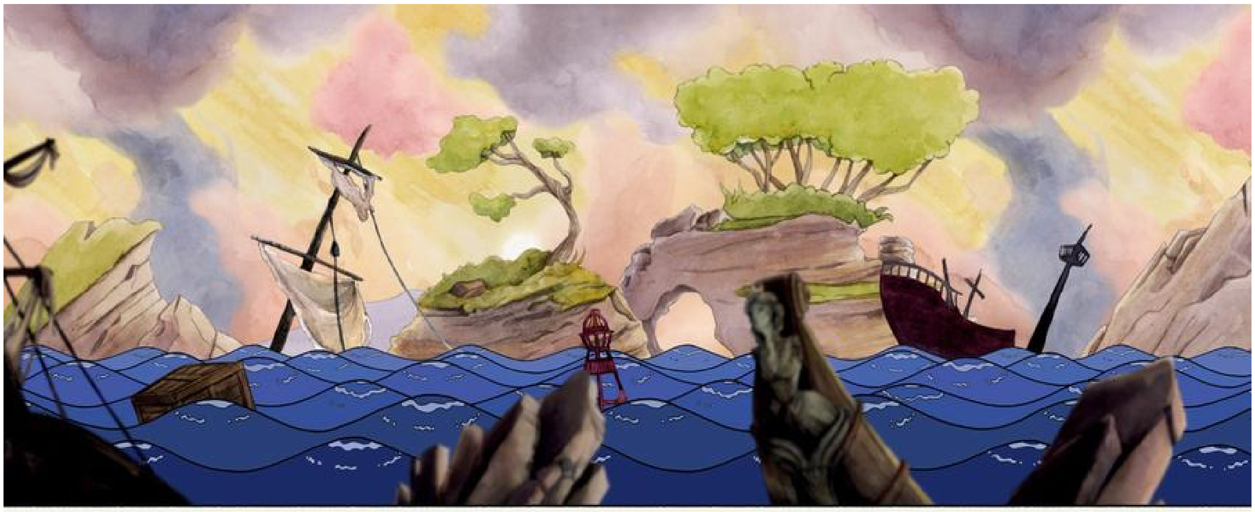
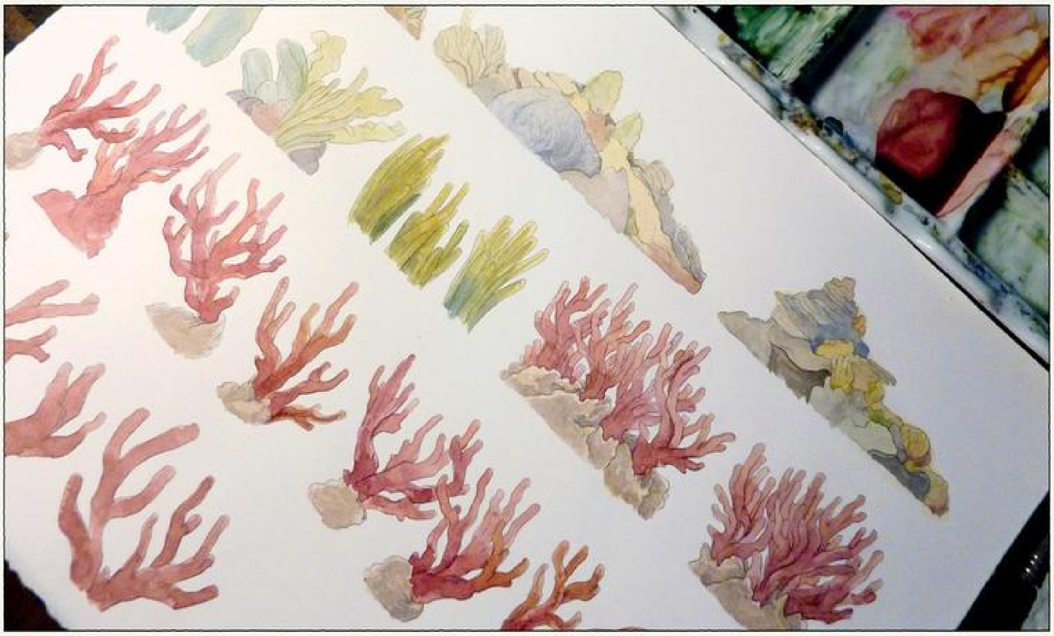
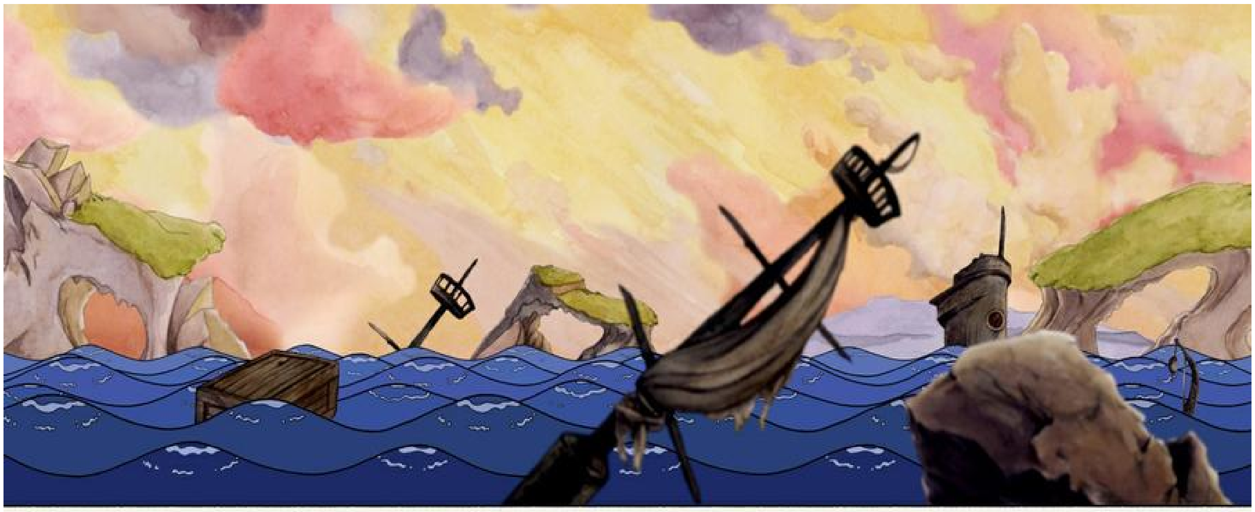


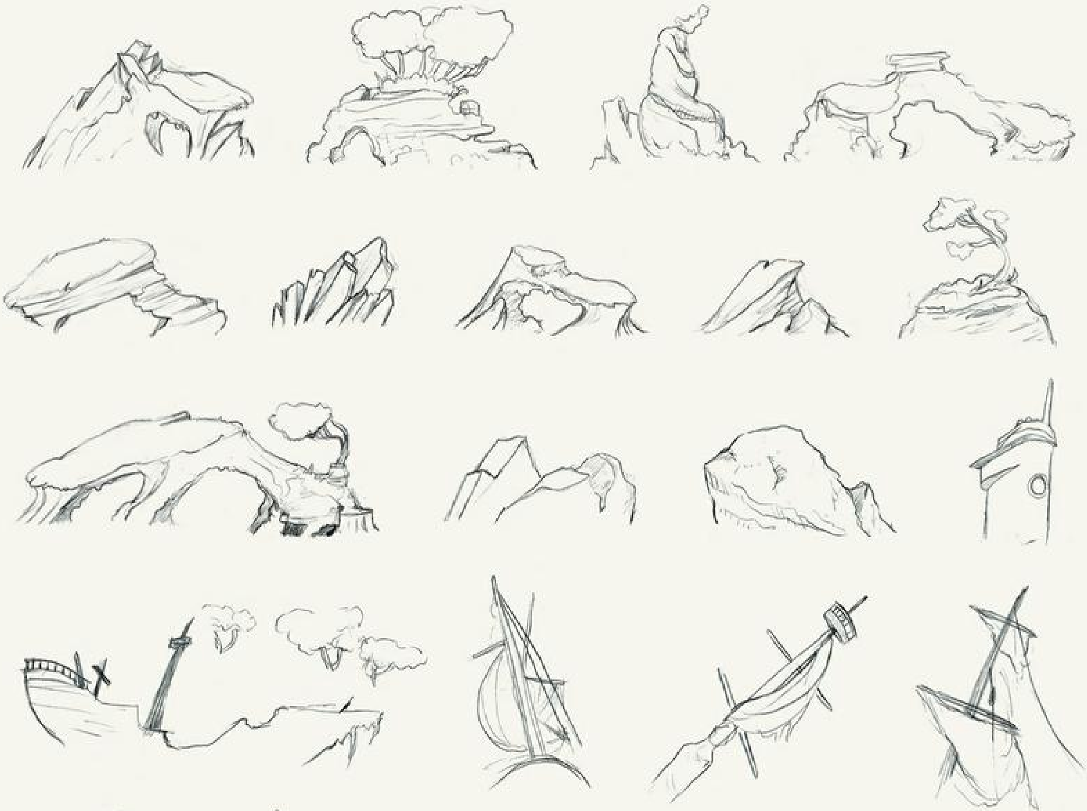
High Seas Hi-Jinx Background

WHEN WE STARTED COMING UP WITH ideas for what would become Cala Maria's background, we only had a few thematic pillars: it was to take place at sea during a sunset, have a low horizon line, and silently tell the story of sailors following a siren's song to their demise. Background painter Caitlin Russell came up with the idea of an endless ship graveyard and it felt perfect. We heavily referenced the wondrous cerulean, orange, and yellow palette and beautiful rock formations of *Popeye the Sailor Man Meets Sinbad the Sailor* and tried to make the sea as ominous as possible while still keeping it bright.

As the stage moves into its third phase, we needed to squeeze the player into a corridor. Nailing the right look proved to be more difficult than we anticipated. After a number of iterations, we settled on a crimson coral cave with swiss-cheese rock walls to showcase ample layers of parallax in the distance. We went with red for the hazardous wall formations for two reasons: One, it was a symbolic color escalation from the yellow skies preceding them. And two, because the color red is synonymous in games with dangerous objects and we needed something that would communicate at a glance that these background elements, unlike any of the other ones in the previous flying stages, could hurt Cuphead.







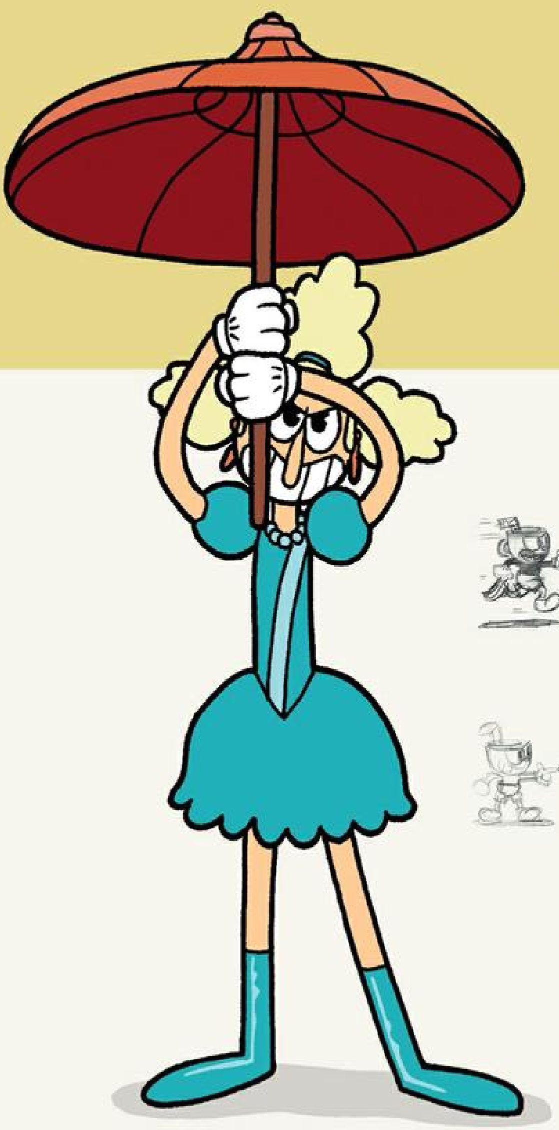
Sally Stageplay
in
"DRAMATIC FANATIC"

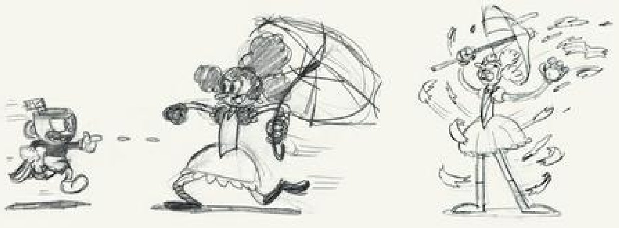
ALL THE WORLD'S A STAGE and all the men and women merely players: they have their exits and their entrances; and one man (or woman, in this case) *in his time plays many parts, his acts being seven ages* (or four, if you make it that far).

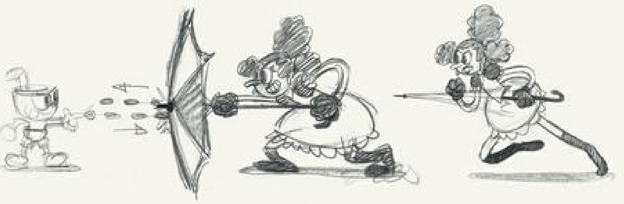
We assume Sally Stageplay would have been a fan of the bard, her being the Inkwell Isle's premier actress. Here, in confrontation with our heroes, we get to see Sally's life play out before our very eyes.

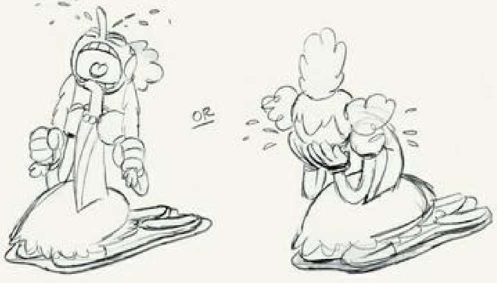
The idea for Sally's fight was a high-concept premise of smashing together our lifelong love of fighting game characters with a choose-your-own adventure style retelling of a character's life, presented entirely on stage, in three acts, with a rousing encore. Throughout the fight, the player would face off against a highly mobile dramatist, each phase representing a key stage in her life. It would culminate in her ascent to godhood and end in her eventual death, all played out in front of a riotous audience eager for more.

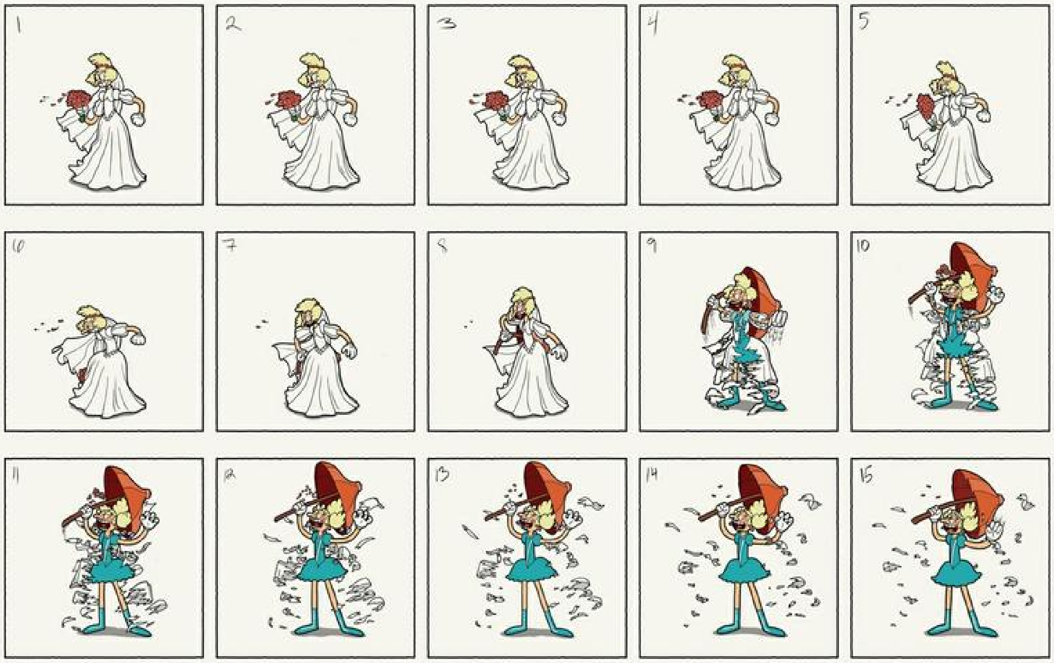
Sally Stageplay's animation is an amalgamation of some of our favorite cartoon and fighting game characters topped with a ComiColor flair. There's obvious influence from *Popeye*'s Olive Oyl, with her lanky limbs and floppy feet, but even more influential was *Samurai Shodown III*'s Shizumaru Hisame, with his unconventional parasol weapon attacks.







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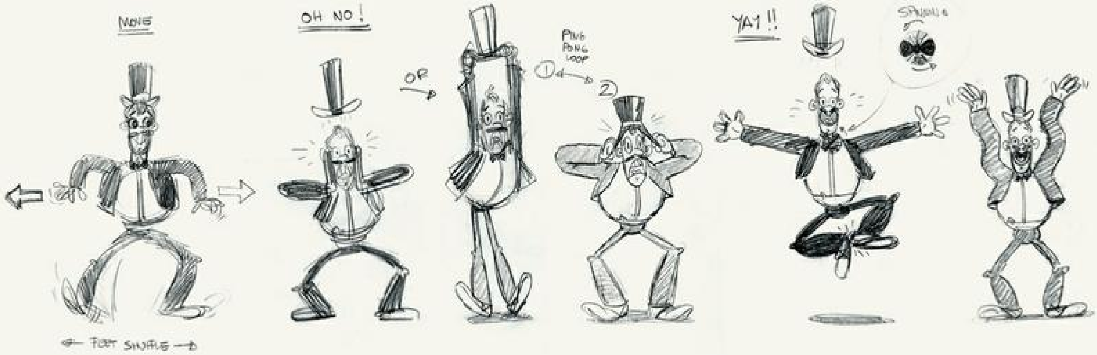
MOVE
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OR
PING PONG LOOP
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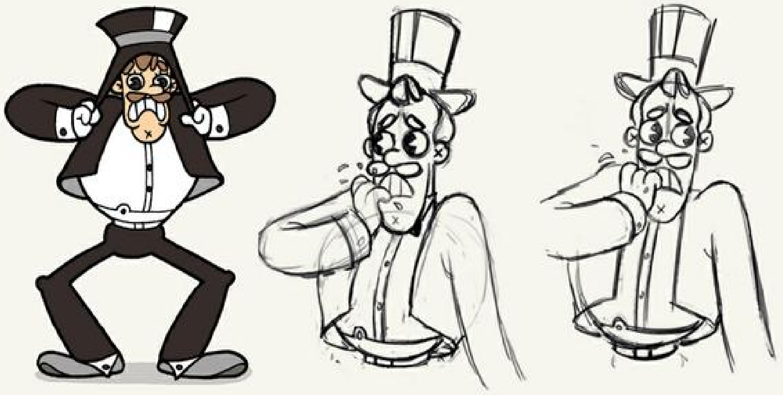
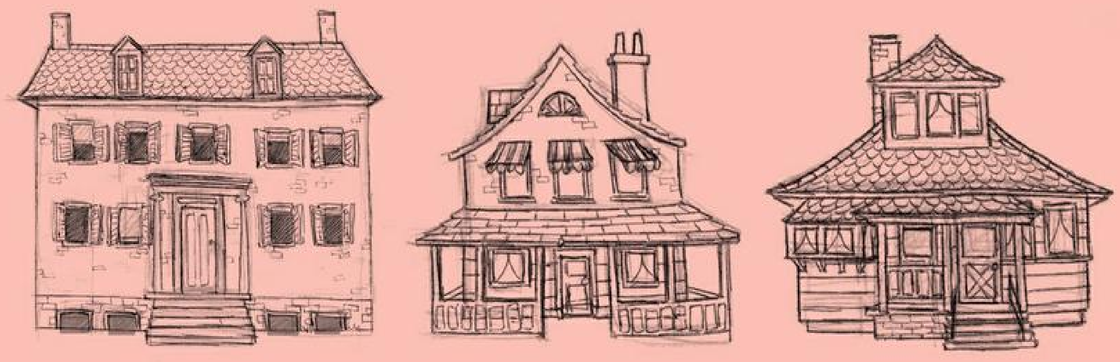
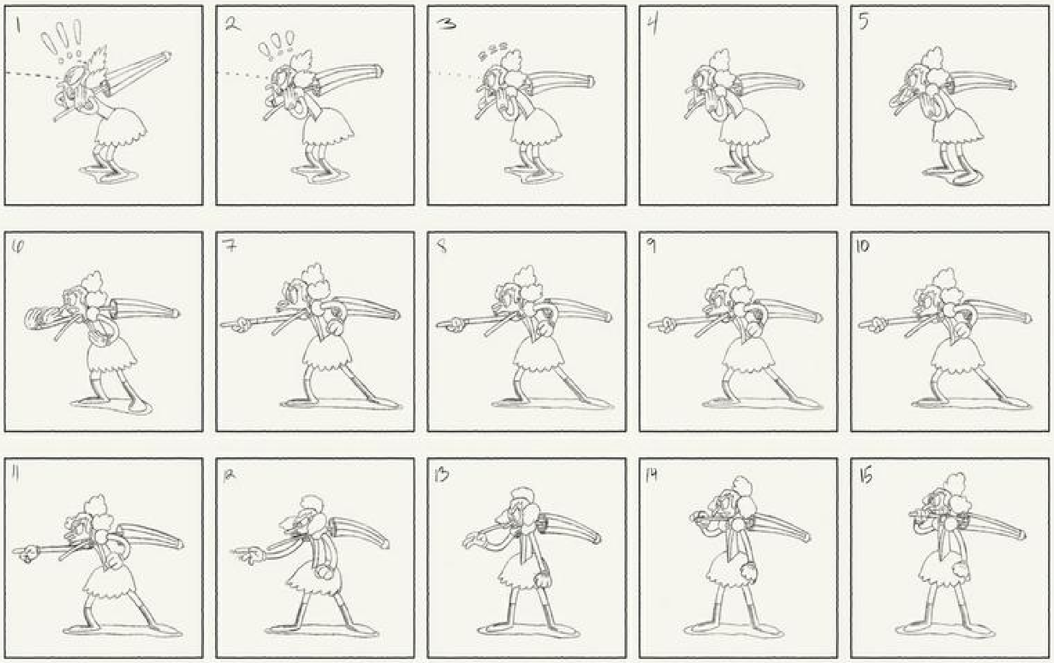
②
YAY!!
SPINNING

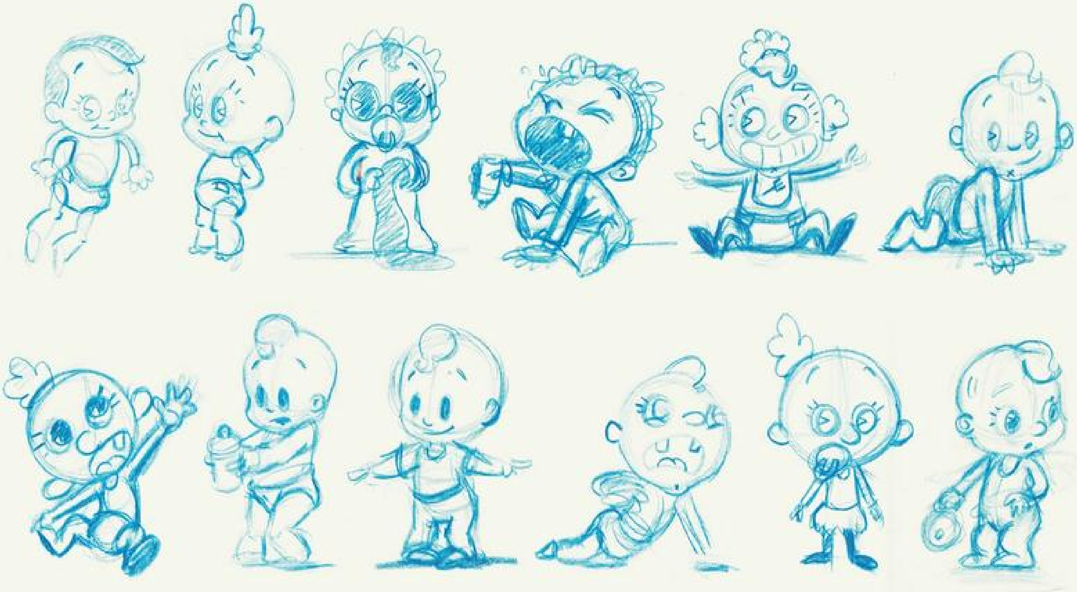


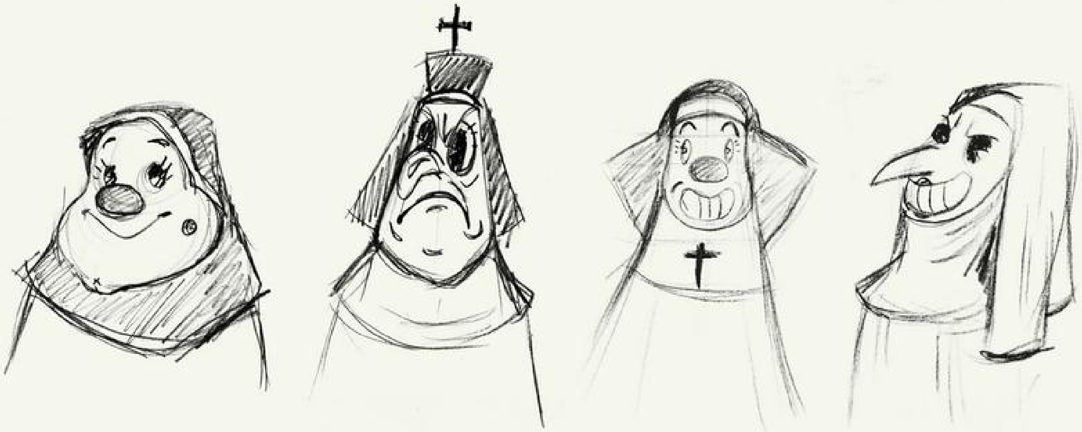
In order to really sell the relationship between Sally and her husband, shown here in early pencil sketches by animator Danielle Johnson, we had him react to what happens to his wife-to-be through the fight. When Sally damages the player, he cheers, and when she takes damage, he frets wildly.

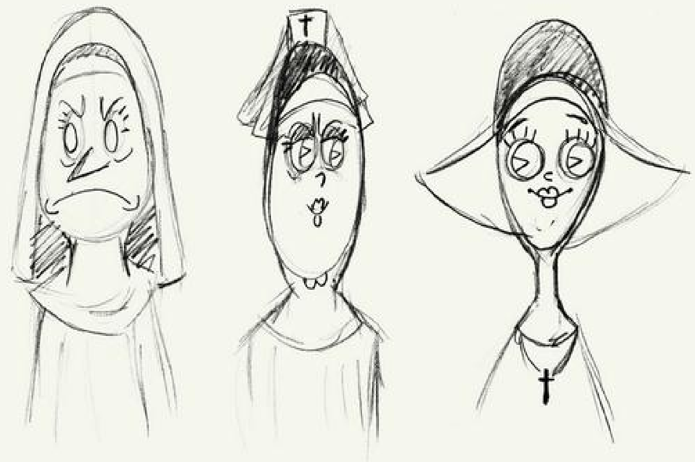


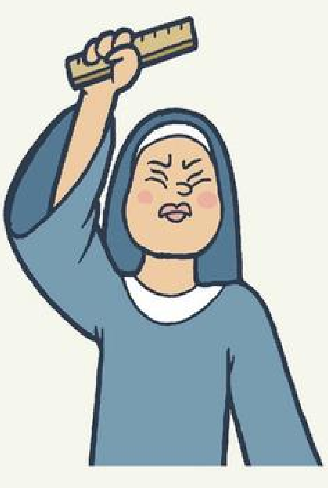
Through the development of Sally's fight, the story of her life changed a number of times. While the husband, the priest, the babies, and the nun were all going to play parts, the specific plotline changed as production changed. Initially, Sally was going to have a couple considerably different possible paths in phase two. One path, which exists in the final game, is the path where Sally's husband lives and she bears the burden of motherhood, with the babies in the background being based on art director Chad Moldenhauer and inker Maja Moldenhauer's production babies, Doutzen and Hans. The alternate path for phase two was originally going to have Sally's husband-to-be die and Sally become a nun herself. While the nunnery path changed for production reasons, Sally's eventual second phase intro (shown below) was interestingly a holdover animation from another "alternate path" moment—one where the priest at Sally's nunnery dressed up as Cuphead and caused all sorts of trouble!

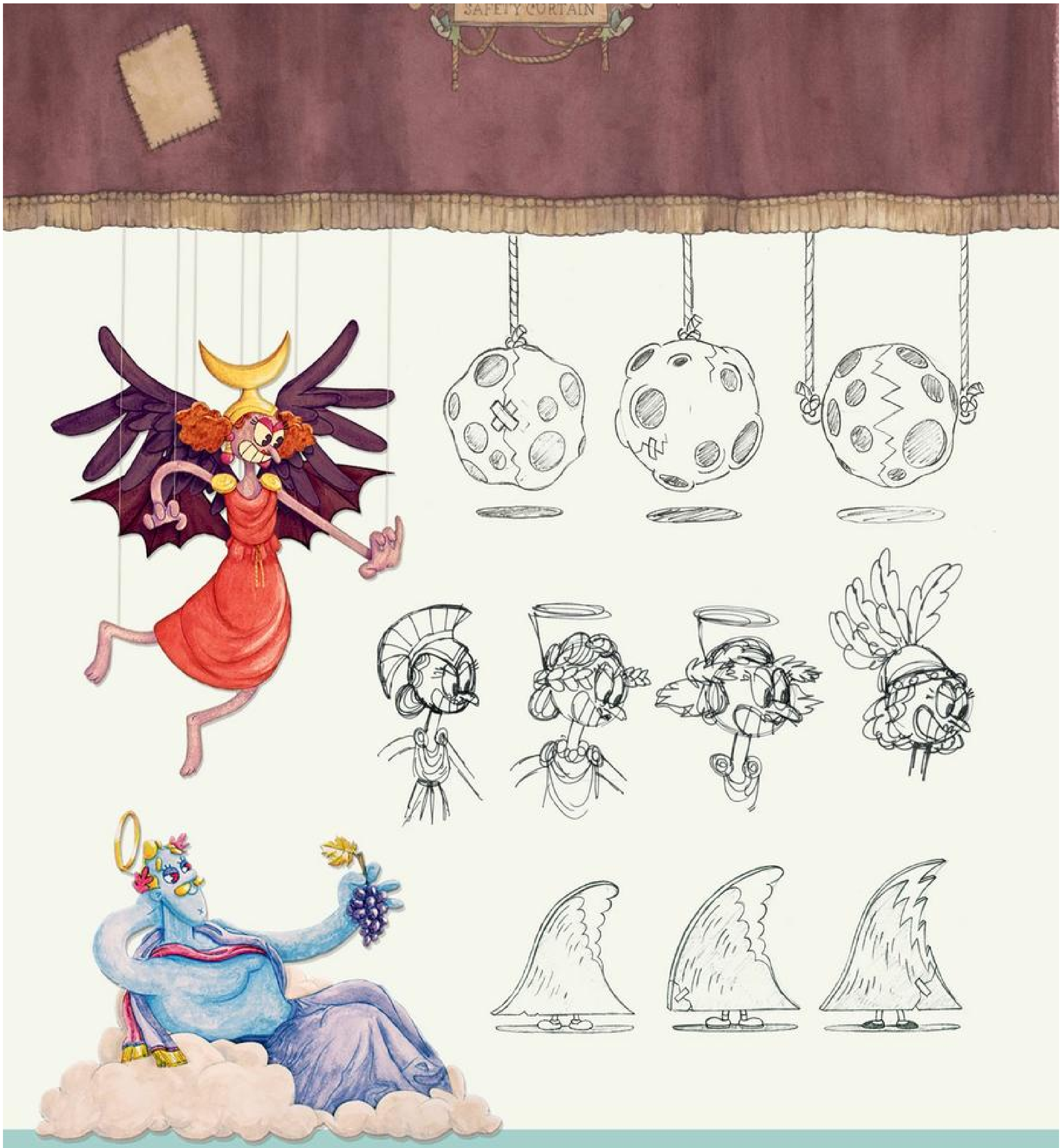






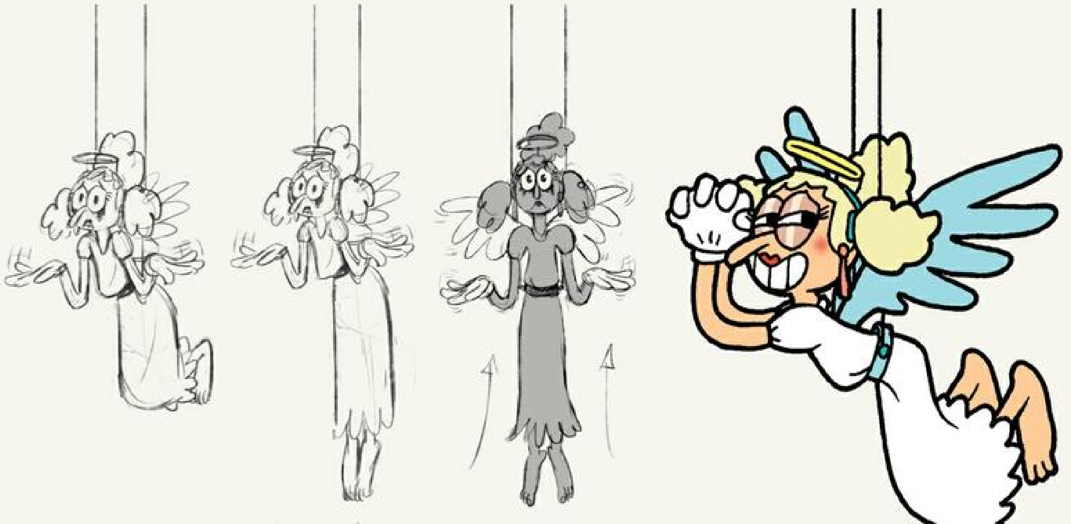


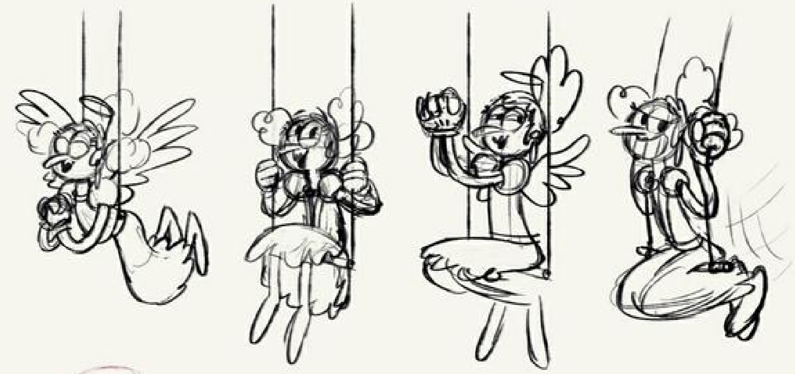




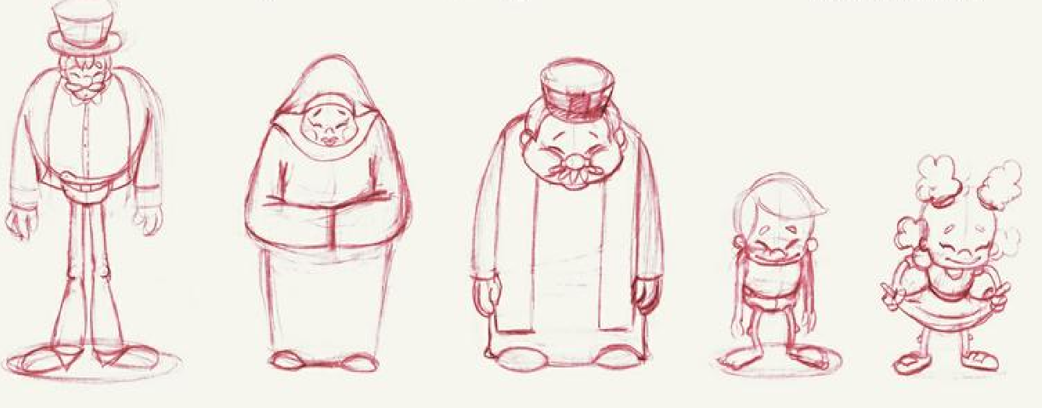
While many fans think that Sally's phase three representation is that of her angelic dead form, it's actually her ascending to her most all-powerful, god-like form. Possibly accompanied by the ascended ghost of her dead lover, Sally unleashes a torrent of powerful magic attacks, all hauled on stage by unfortunate stage hands and production assistants. A clear homage to Kefka's final form from the seminal Square masterpiece *Final Fantasy VI*, we wanted celebrate as many Japanese role-playing game tropes as we could. From the painted palette ascent to godhood, to the world crushing meteor, to the opera house–like stage, to the signs that descend announcing which magic attack is about to strike, we stopped just short of making this phase completely turn-based.

Sally's phase three stop-motion, almost paper-craft, animation is an homage to the stop-motion techniques employed by many animators in the 20s and 30s, notably in Fleischer's 1926 oddity *Animated Hair Cartoon*. Completely absent in the rest



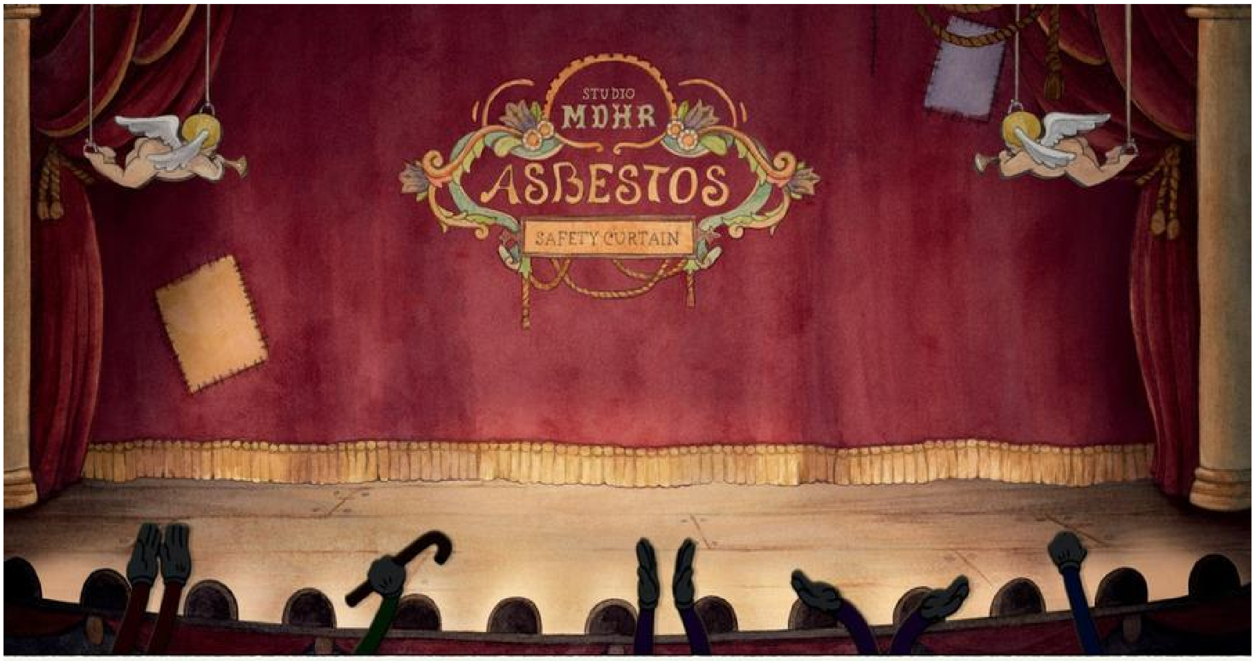


Pencil sketch concepts for Sally's phase four pose by animator Hanna Abi-Hanna. When coming up with poses for each phase, we try to convey the character's personality through their body language. Here we see concepts of Sally looking content and glowing, but to maximize her ego, went with her pumping her fists in victory, even in death.



of *Cuphead*, we felt this style really made Sally's ascension feel like she had separated herself from the normal cartoon plane of existence and added punch to what would appear to be the finale. We went through a number of headpiece conceptual designs for this phase, with her fresco-like representation leading us down a Greek-chorus-like path.

But alas, Sally is a starlet who can never truly leave the stage. So even dead, as an angel, Sally continues the fight while the audience rains roses of appreciation down on the stage. One of the few four-phase bosses in the game, we wanted to convey that Sally would never let the spotlight go, even after the play was over and her cast mates were taking a bow.


STUDIO
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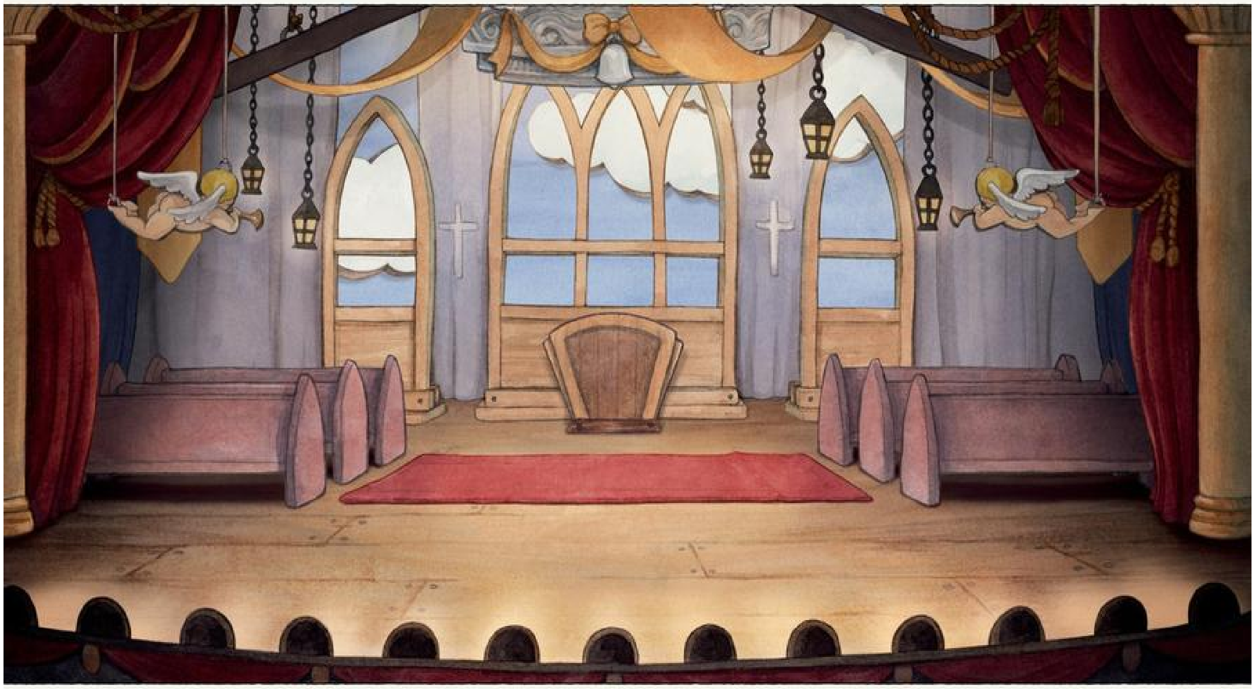
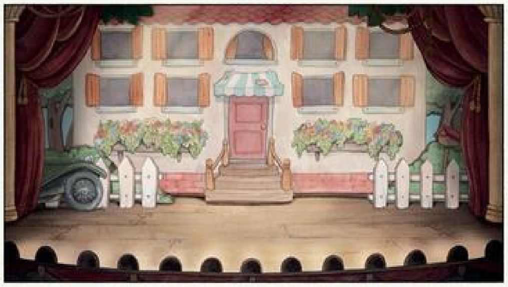
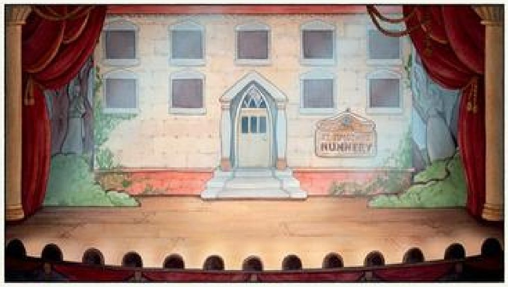
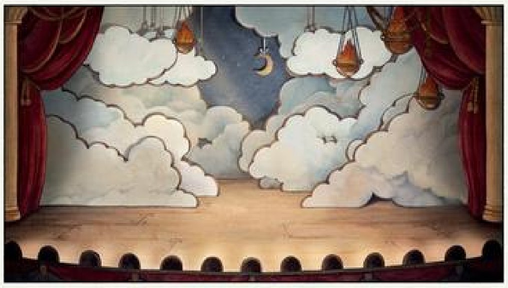
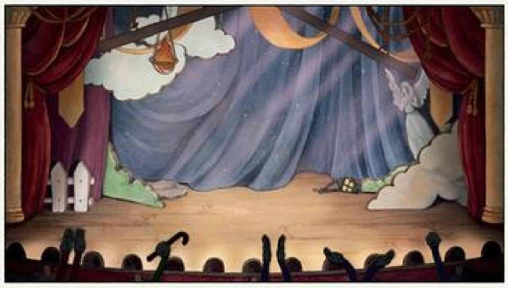






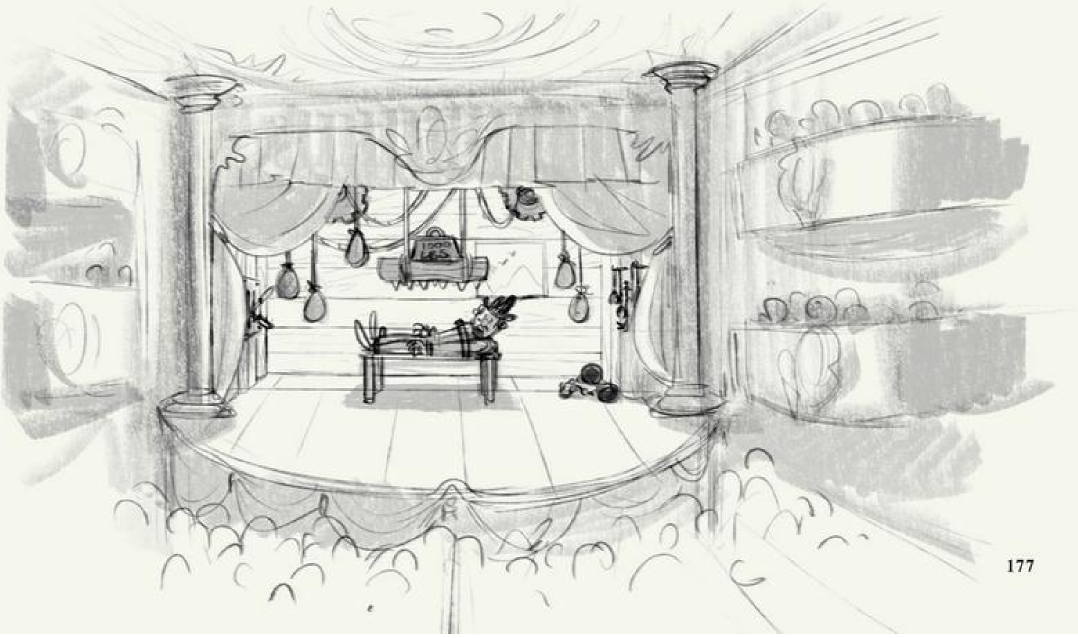




Dramatic Fanatic Background

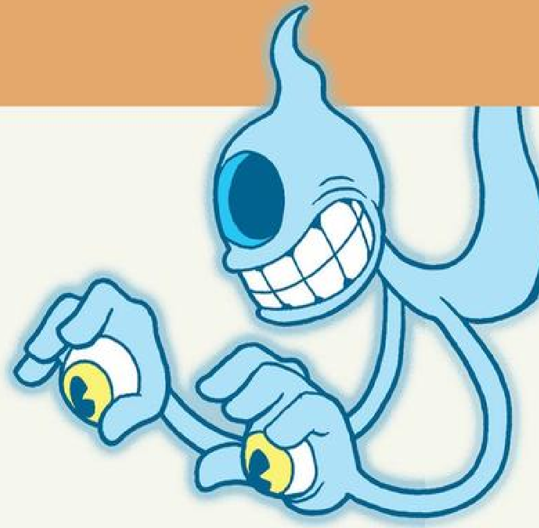
WANTING A CLASSIC 1930s STAGE LOOK, we researched a number of old stage venues to see how they were constructed, from lighting to stage boards. The curtains, unfortunately, were often made and emblazoned with asbestos, then thought to be a wonder material. The stage settings themselves were made from painted wood cutouts so they could be slid off and on stage with relative ease.

Sally's background actually consists of five different backgrounds, put together from dozens of individual pieces painted by background painter Caitlin Russell. Referencing cartoons like *Betty Boop's She Wronged Him Right, No! No! A Thousand Times No!* and *Prize Show*, we pulled brush techniques and perspective design to match the era. Where we could, we slipped in a couple of jokes, including the name of the nunnery, St. Timothy's, named after the grade school the Moldenhauer's attended as children.



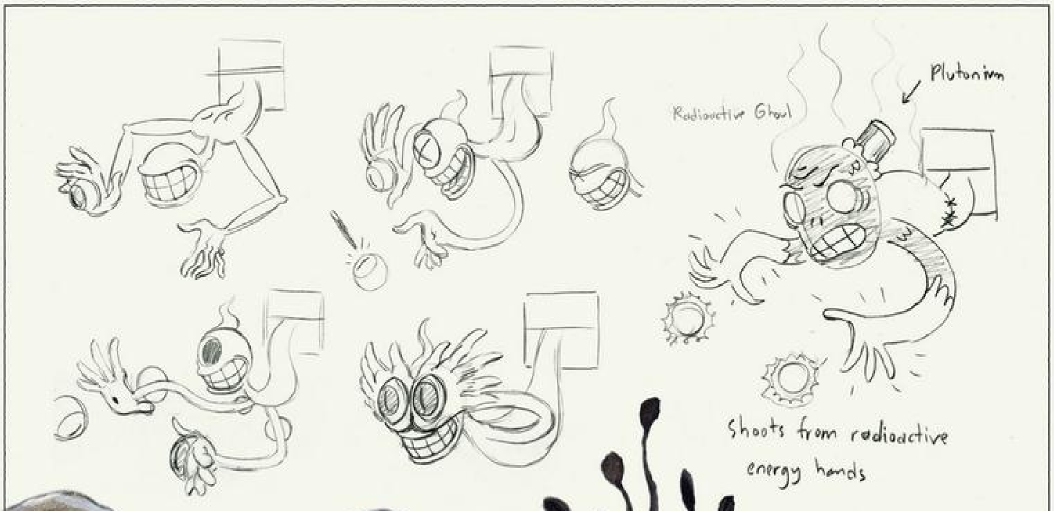
Phantom Express
in
"RAILROAD WRATH"

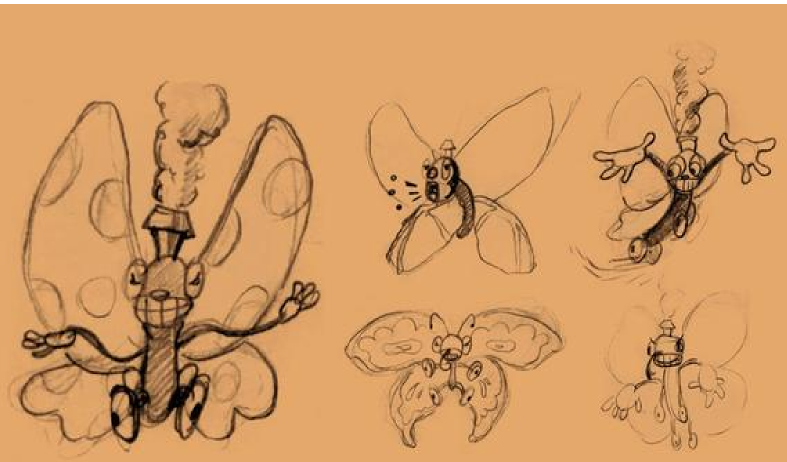
BEFORE CUPHEAD AND MUGMAN can make it to the casino on the wrong side of the tracks, they have to make it past the spooky Phantom Train on the tracks themselves! While coming late in our heroes' journey across the Isles, the Phantom Train was one of the earlier boss fights developed for the game. As an homage to the Ghost Train from *Final Fantasy VI*, including a musical nod to their train's theme in our fight tune, both lines take departed souls to the land of the dead. We thought this ghostly battle would be the perfect thematic lead-in to Inkwell Hell.



Blind Specter

AS A CONTRAST TO THE USUAL single bosses morphing into different forms, we wanted the entirety of the Phantom Train fight to be a series of fights against individual different monsters instead. For the intro to the train, players cut their teeth against the *Pan's Labyrinth*-inspired Blind Specter. With a simple bouncing eyeball pattern and goofy theatrics, we wanted to set the stage for the battle to come by giving players time to adjust to the parry-controlled train-cart movement system unique to this fight. Much like the mouse spirits from Werner Werman's fight, we chose to make the ghostly form of the Blind Specter blue based off of the ghosts in the 1937 Disney cartoon *Lonesome Ghosts*.


Plutonium
Radioactive Ghoul
Shoots from radioactive energy hands

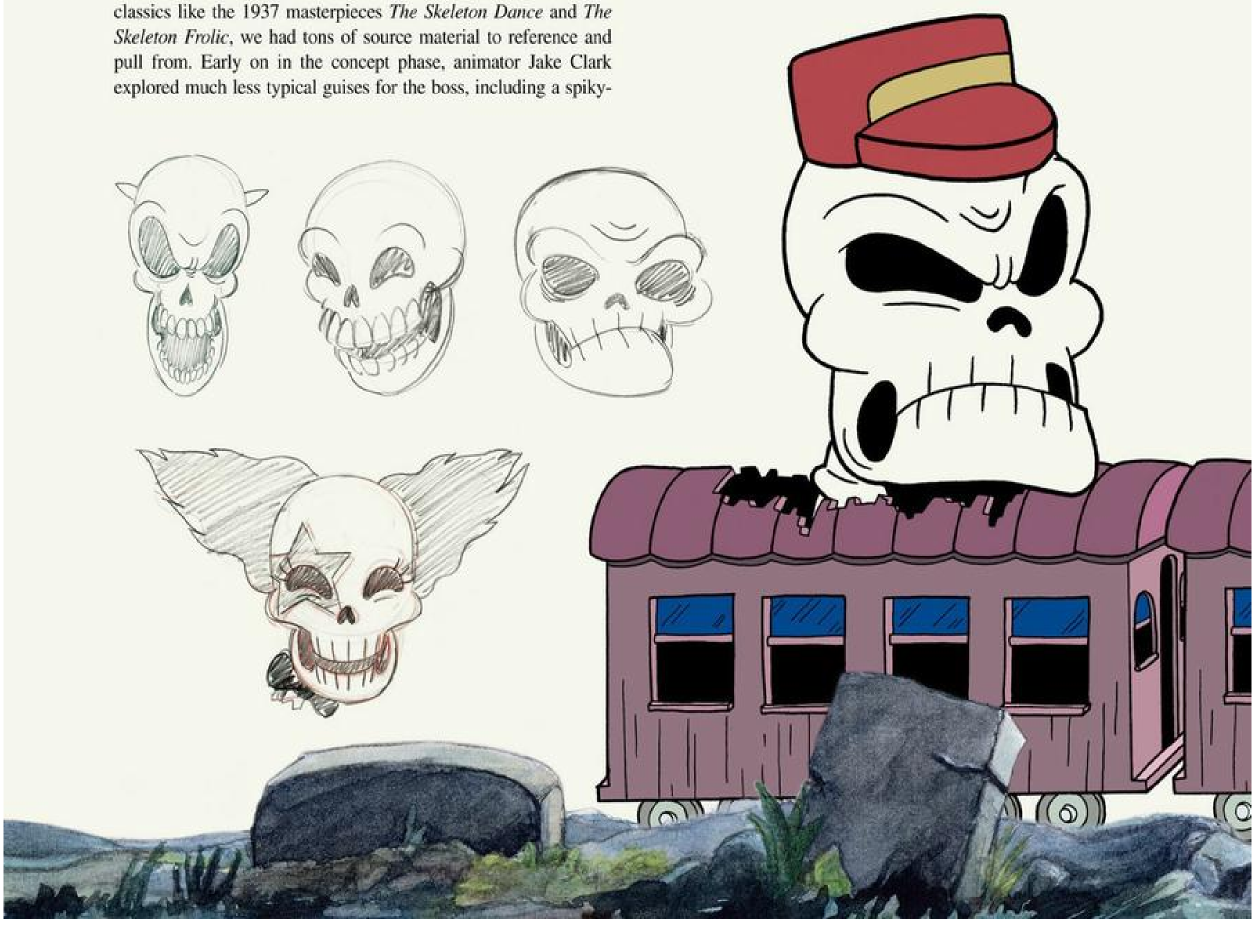


The peculiar flying pumpkins that drop pink bricks on the players went through a number of iterations throughout development. These early pencil concepts of steam-powered butterfly gremlins show a decidedly different take on the pests. Sometimes the concept phase is just eliminating all of the designs you don't want a character to be.

Conductor

ONE MAY NOT EXPECT to find the conductor of the train in the middle, but where else could a skeleton of this size fit? With his trusty conductor hat in tow, this towering set of bones was designed to test the player's ability to move around their train cart at rapid speed while watching out for the brick-dropping pumpkins flying overhead.

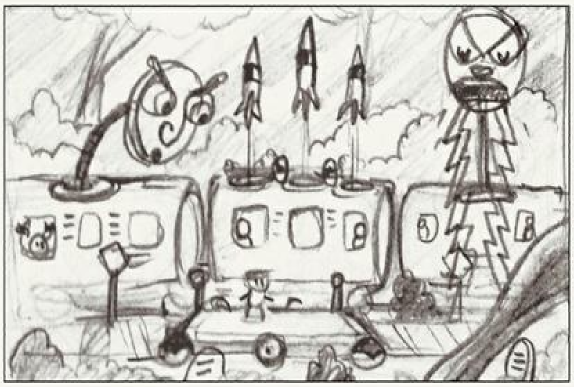
With numerous examples of iconic skeletons appearing in cartoon classics like the 1937 masterpieces *The Skeleton Dance* and *The Skeleton Frolic*, we had tons of source material to reference and pull from. Early on in the concept phase, animator Jake Clark explored much less typical guises for the boss, including a spiky-haired version as a take on Beethoven's wild mane and a play on the word "conductor." Unusual as that concept is, the star mark across his eye was an homage to *Super Mario Bros. 3*'s Morton Koopa Jr. (his own makeup an homage to the lead singer of the classic rock group KISS!).

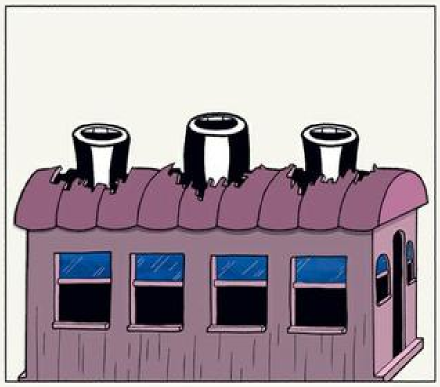


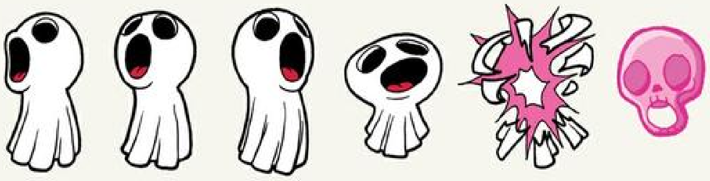
Lollipop Ghouls

FROM PENCIL CONCEPT TO GAME, the Lollipop Ghouls were one of the boss designs that had almost no iteration during the concept phase, because we found exactly what we wanted from the start. Drawing heavy influence from the ghastly faces that terrorize Bimbo at the end of Fleischer's *Swing You Sinners* short, this decapitated duo fit perfectly into the gameplay design of frantic side-switching on the train cart.

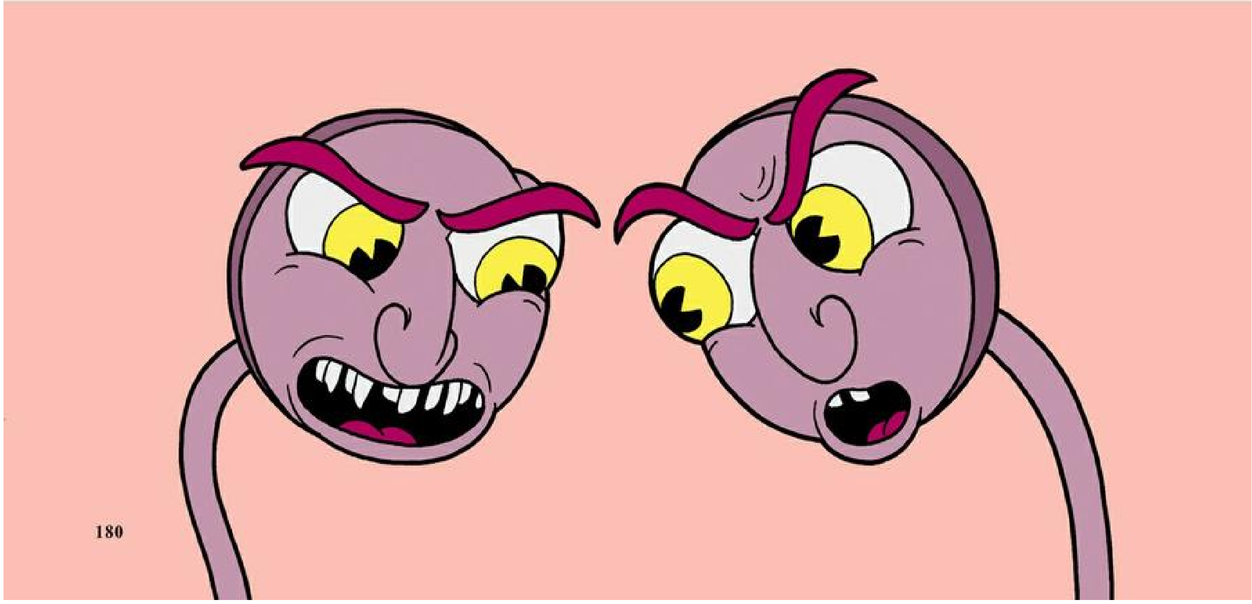
Of the many bosses in *Cuphead*, we felt that these purple baddies best capture the surreal, musical, twisted, and fun ethos of the rubber-hose cartoon classics we pay tribute to. The bulging eyes, the noodley necks, even the center train car's pulsing ghost barrels all bee-bop to the music while threatening to flay the heroes alive. Everything coalesced thematically in this phase, with the lightning crackle from the ghouls' mouths matching the lightning of a dark, spooky night and the skulls cascading down from the defeated ghosts tying into the graveyard littered background. But this phase isn't the end of this fight.







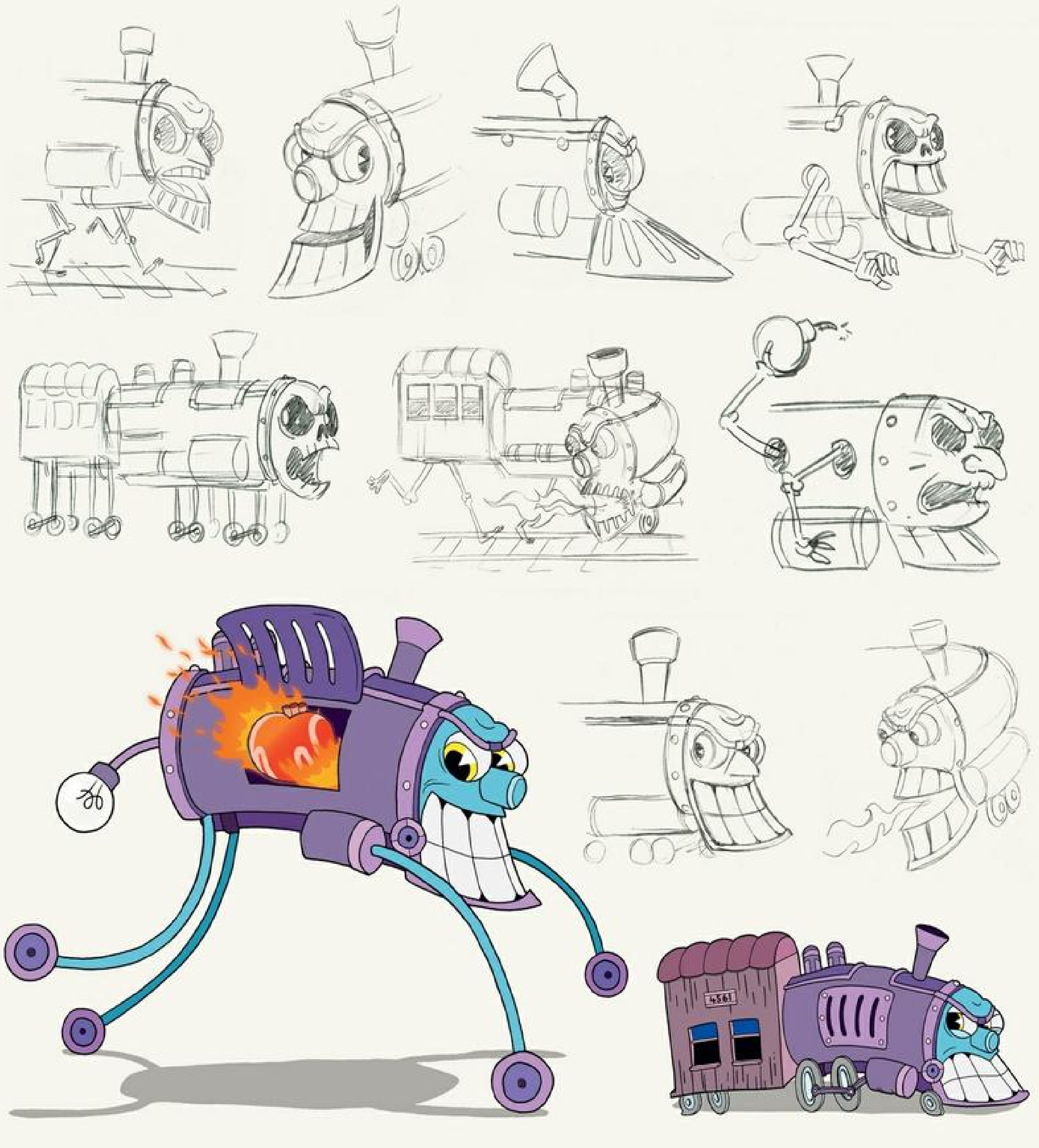
While the central cart in the initial design sketch shot out rockets, we didn't feel that was thematically appropriate for this spooky fight. Through the concept phase, animator Jake Clark came up with a fun ghost design based on a traditional craft-work tissue paper ghost made for Halloween decorations that we used instead.

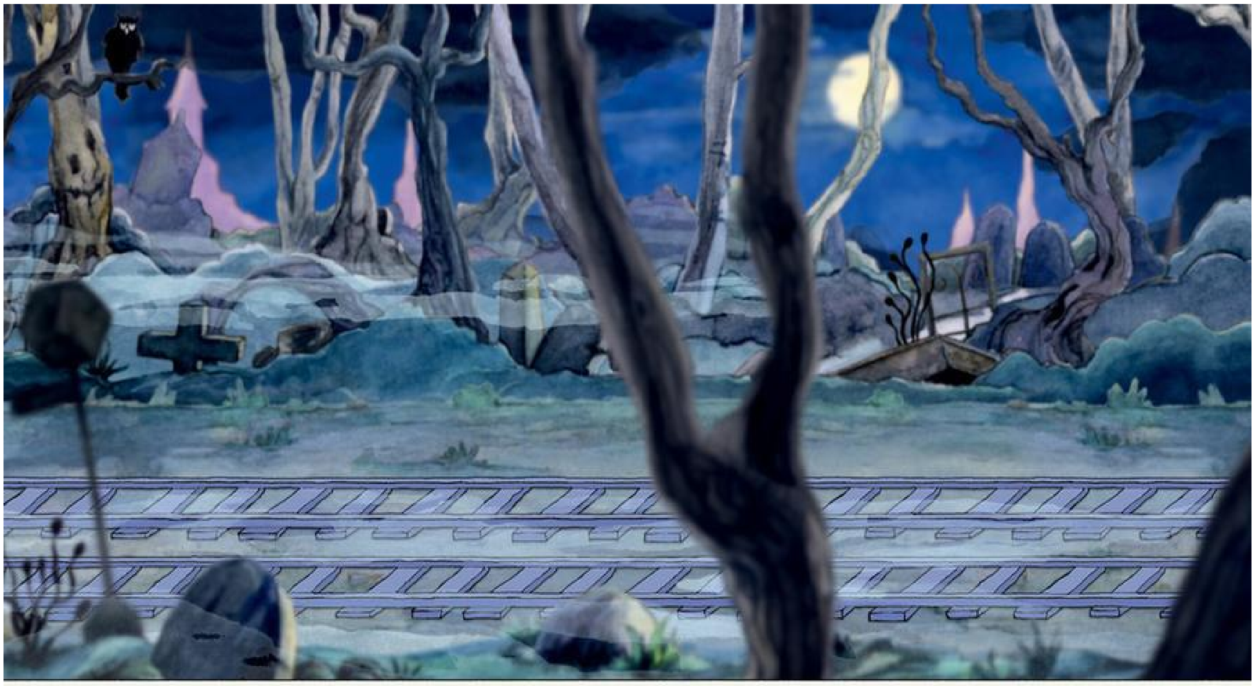


Train

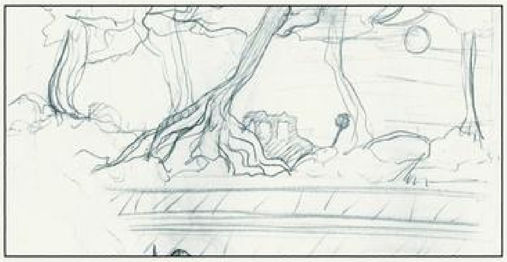
AFTER FACING ALL MANNER OF ghosts and ghouls, Cuphead finally comes face-to-face with the head of the Phantom Express. Attempting to push players to the limit, this uncommon fourth phase was designed to be a more strategic test to use their parrying skills to find a way to target the literal beating heart of the engine. Having to bob and weave through diabolical bone wheels and blistering fireballs to parry slap the light bulb tail to open a door to his only vulnerable spot created an encounter unlike any other in *Cuphead*.

Due to the gameplay design of this phase requiring the boss form to be higher on the screen, early concepts explored how we could raise the engine above the tracks in a fun way. From stilts to telescoping arms, many different ideas were tested, but once we saw animator Jake Clark's version of the engine running on spaghetti legs down the train track, we were sold.

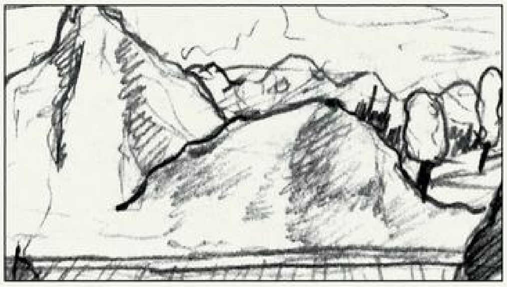




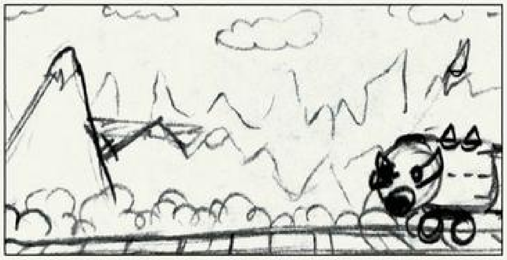
Phantom Express Background

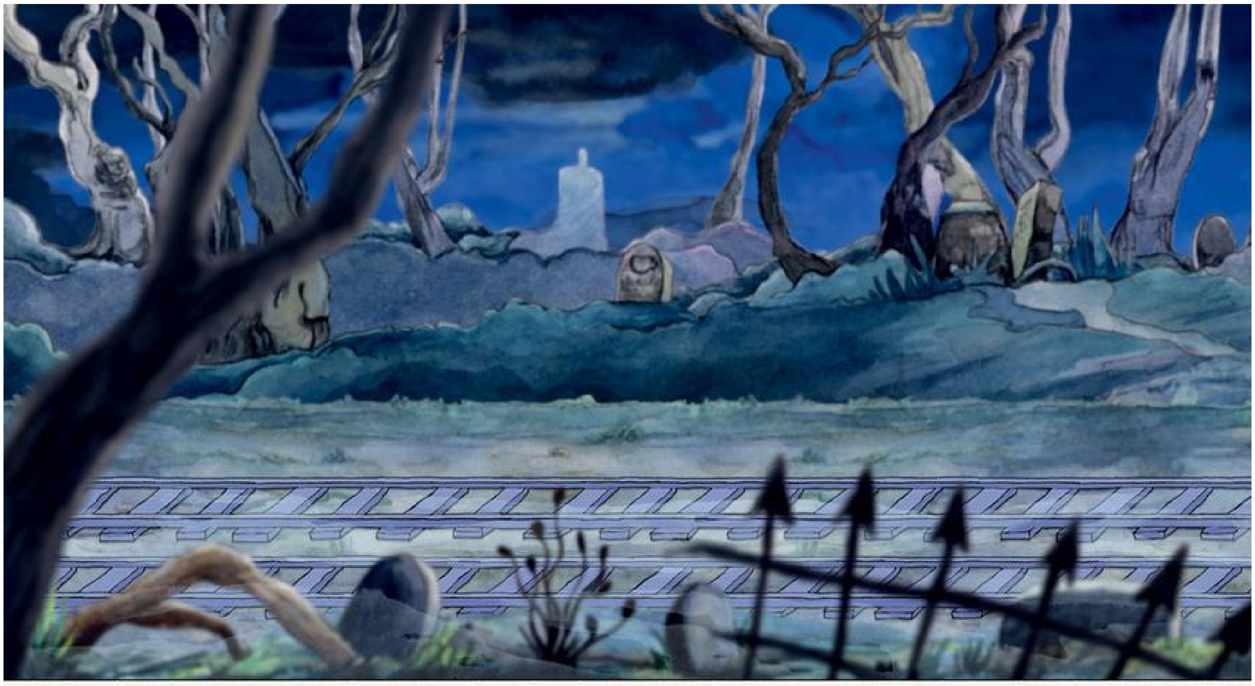


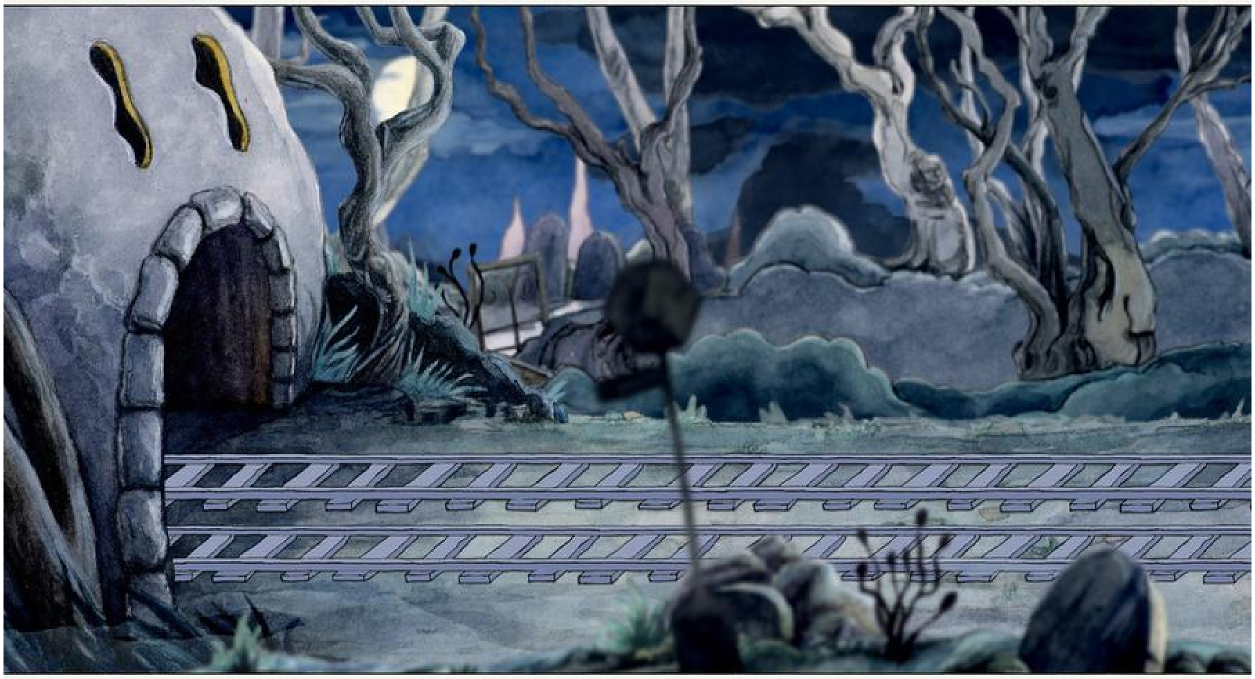
ONE OF THE EARLIER BACKGROUNDS completed for the game, Railroad Wrath's blue-tinged graveyard went through a couple of changes as we developed the stage. Initially, the entire Phantom Express battle was going to be fought ascending up a tall mountain to The Devil's Casino located at the peak. The idea of The Devil's residence not being pitched below the earth didn't make much sense to us, so we scrapped that idea and decided to use the trek through an endless spooky graveyard instead.



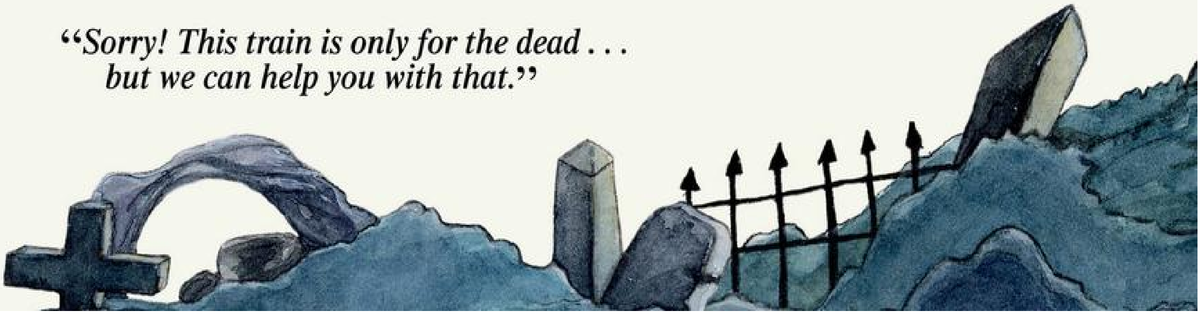
Background painter Caitlin Russell referenced landscapes in *The Skeleton Frolic* and the Silly Symphony short *Flowers and Trees*, sketched out a variety of spooky earthen features (from rolling hills to dirty swamps), individually painted them, then we cycled those parts in the background throughout the fight. But one thing we found was that the more disparate the background chunks were, the more obvious it was that the same ones were repeated over and over again. We found that simplifying and unifying the component parts made the endless cycles of elements much less noticeable. Unfortunately, along with the other larger chunks that didn't visually work, we had to lose the spooky cave mouth shown to the right as well.







*"Sorry! This train is only for the dead . . .
but we can help you with that."*

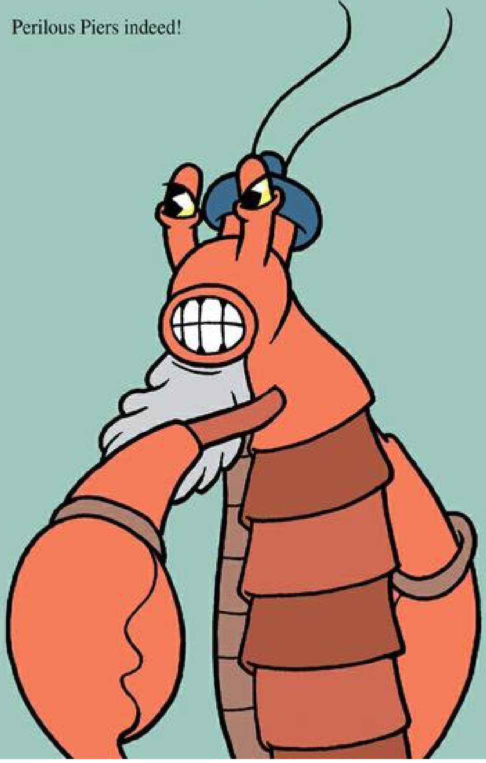


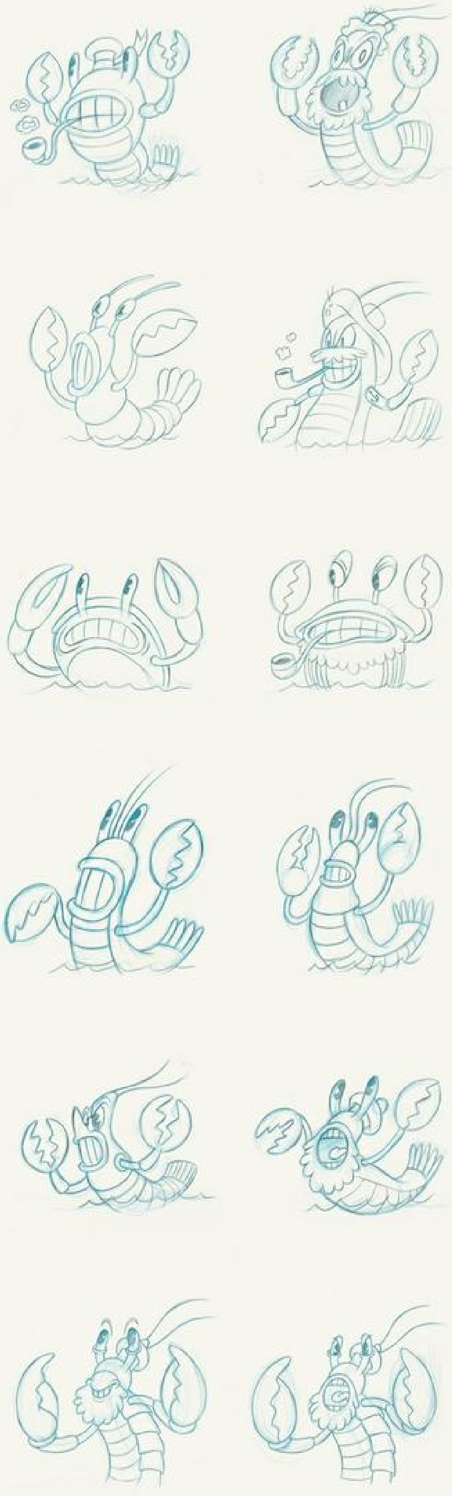
Run & Gun
PERILOUS PIERS

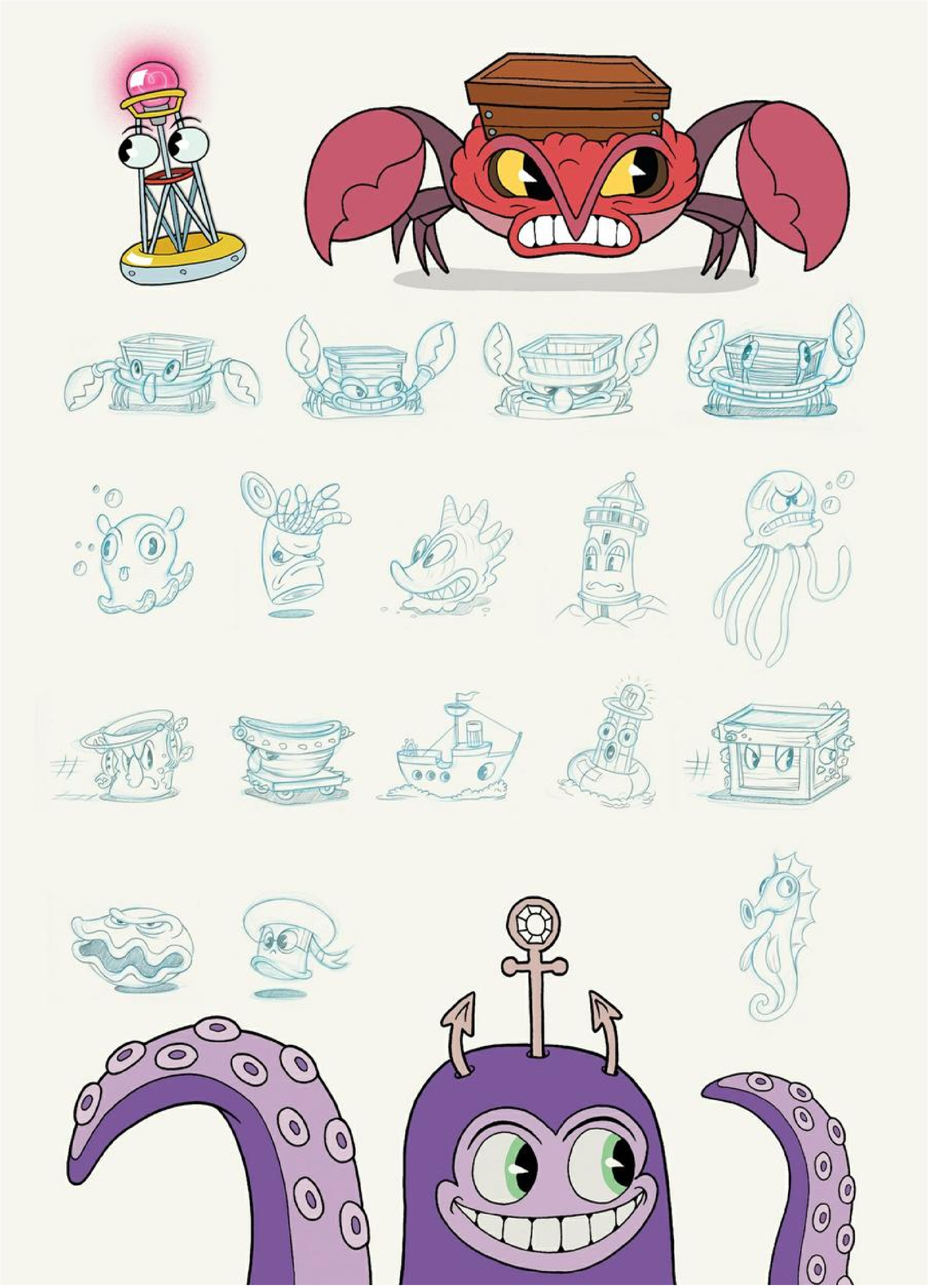
AH, A DAY AT THE PIER! The gentle spray of the ocean misting you as you stroll merrily along, ice-cream cone in hand . . . angry crab sailors at your heels? Yes indeed, the piers of Inkwell Isle Three are bright and colorful, based on a blend of our favorite seaside video game levels and careful research of 1930s harbors. But they, like everywhere else you visit in *Cuphead*, are not to be underestimated. As one of the two final platforming challenges in the game, we knew that we wanted to get more ambitious with the level of variety and challenge, and really put people's feet to the fire (or waters!) to see how they had mastered the game's mechanics.

Similarly to our other run-and-gun stages, the gameplay design came first here, as we broke down the stage design into three mini "acts," each of which had a distinct challenge and learning outcome. The street leading up to the pier combined static enemies with arcing projectiles and baddies that flew toward you from offscreen right, in order to test your spacing, shooting, and reactivity. Curmudgeonly crabs followed (and who wouldn't be curmudgeonly with a box stuck in their head?), forcing you to put your jump dash on display on the way to the docks themselves, where both careful shooting and quick thinking would be necessary to avoid enemies while steering clear of a (literally) crabby sailor zooming back and forth. And everything culminated in a truly tough parry challenge, on an octopus beset on all sides by enemies, whose head you needed to carefully bounce atop in order to smash the rocks lying between you and the level's end.

Perilous Piers indeed!

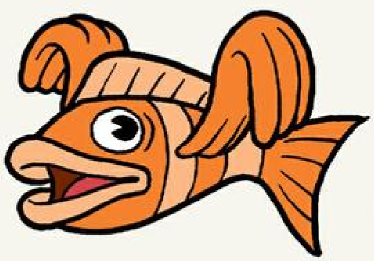
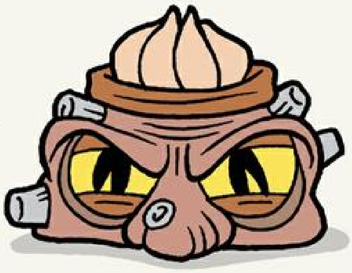
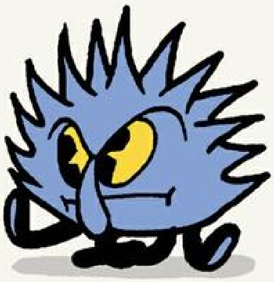
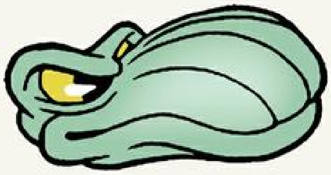
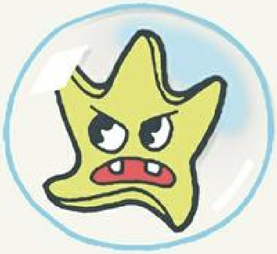
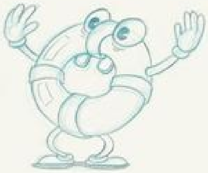
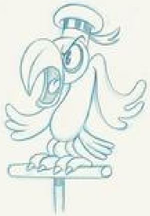
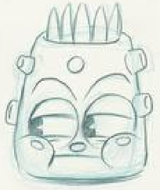
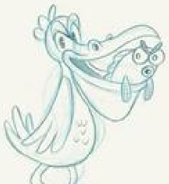
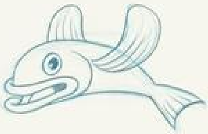
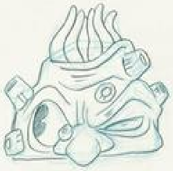
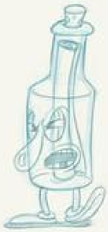
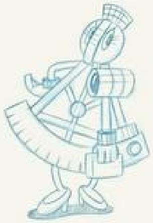
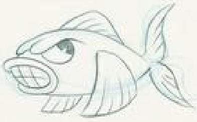
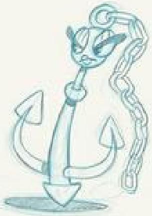
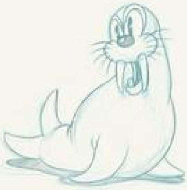
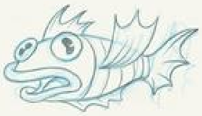


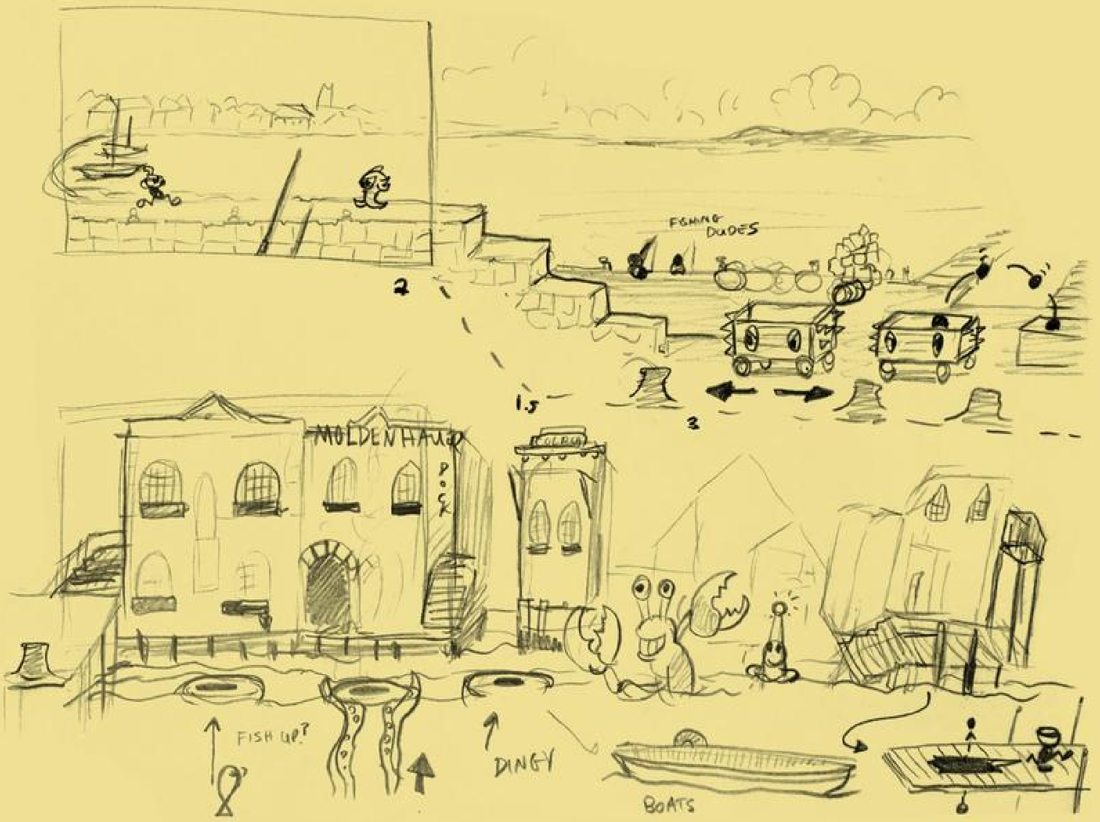


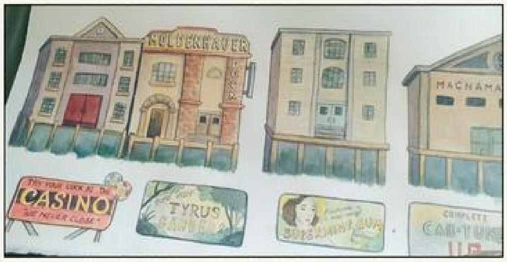


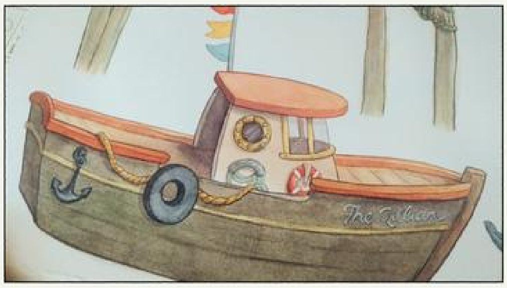
One of the big goals for Perilous Piers was to really lean into the 1930s cartoon tendency to anthropomorphize. More than in almost any other stage in the game, we sought to make all aspects of this level feel alive—from the larger-than-usual variety of enemies in the level to the use of an octopus instead of a boat or vehicle at the end, to the bouncing buoys with eyes. Aesthetically, two particular reference points we provided to Perilous Piers animator Tina Nawrocki were *Small Fry* (1939), and *Educated Fish* (1937), both from Fleischer Studios.

With that said, like any of *Cuphead*'s visual concepting, these references were only a starting point, and acted as a springboard for Tina to use to come up with the many original ideas you see below. Using a general directive of "things you'd find at a pier or harbor," she delivered a wide variety of options, of which you can see some of the final enemies in color. In the early sketch of the level layout seen to the right, you'll even notice our initial vision for the moving platforms that lead players to the docks—originally envisioned as simple boxes, but brought much more to life as unique characters after shifting directions to a creature-box fusion.

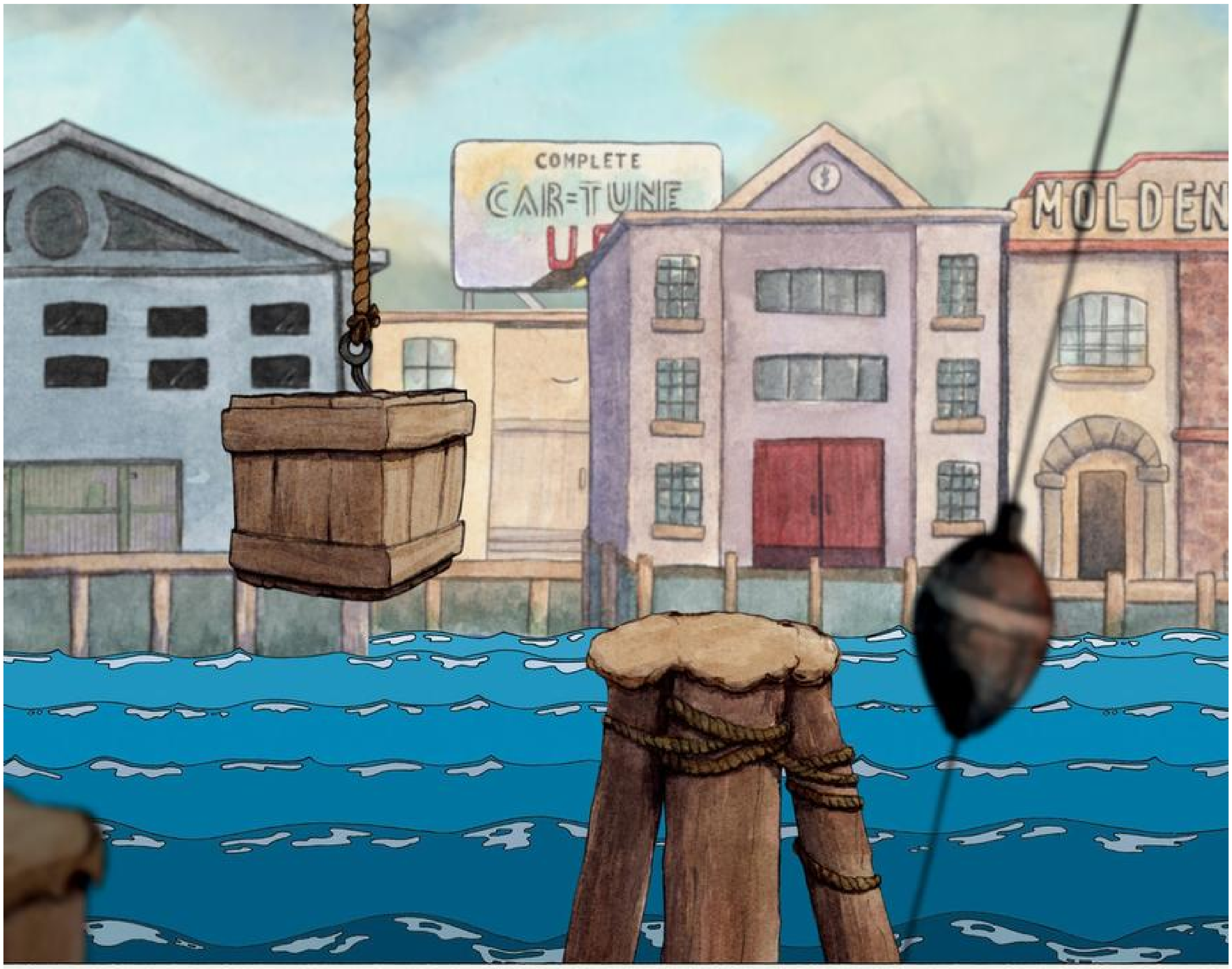




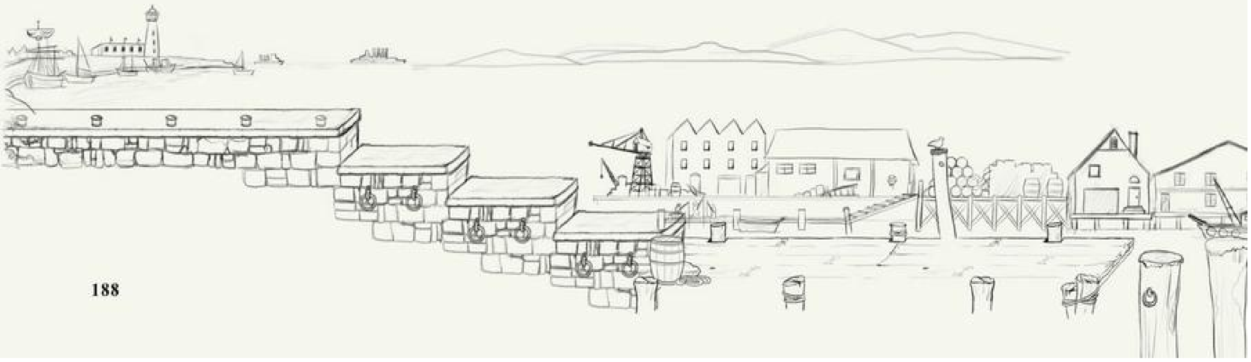


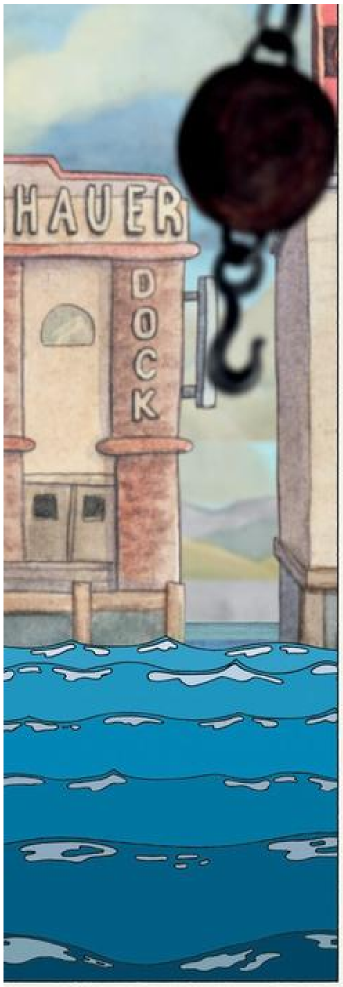
Perilous Piers Background

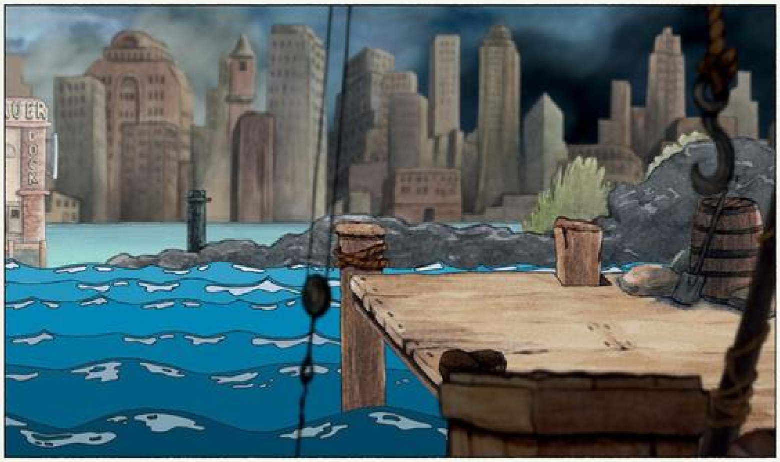
BY FAR THE BIGGEST ART CHALLENGE for *Cuphead*'s run-and-gun levels was planning, and Perilous Piers was no exception. It was crucial to carefully consider how each background section would work with one another as players moved through the stage, and mesh with both painted and animated foreground elements. As one of the game's more ambitious platforming levels, Perilous Piers in particular was stuffed to the brim with details for background painter Caitlin Russell to tackle, just a few of which you can see to the left. In particular, the boat's name, *The Lillian*, is a tribute to the first American female animator, Lillian Friedman Astor, who did seminal work on toons like *Betty Boop* and *Popeye*. Meanwhile, the sign advertising Tyrus Gardens pays tribute to the inimitable Tyrus Wong, whose work as a painter, animator, calligrapher, and storyboard artist can be seen across works like Disney's 1942 classic *Bambi*, *Rebel Without a Cause* (1955), and *Around the World in 80 Days* (1956). It's no exaggeration to say *Cuphead* wouldn't exist without these greats, and we very much wanted to pay them respect.



Below, you can see the final linear art spread for Perilous Piers. Linear Art was a stage that preceded painting, during which we'd work with Caitlin to lock in all the final visual details before moving to a color key and paint. With a process like watercolor painting, it's important to be very sure before heading into the final stretch, as changes midstream aren't really possible once paint hits paper. Looking over this linear art calls to mind a few other references we tried to sneak into Perilous Piers, including the Hotel Iwerks after legendary animator Ub Iwerks (who you may or may not know cocreated a certain well-known animated mouse!), and Hotel MacNamara, after the maiden name of poet Dylan Thomas's wife Caitlin, who of course shares a name with *Cuphead*'s background painter. We also tried to continue a sense of world building by including a prominent advertising for the very casino at which poor Cuphead and Mugman gambled away their souls—an establishment which naturally never closes. Not pictured, but still worth noting? The animated sea waves from this level, which required a whopping 420 frames to bring to life and imbue Perilous Piers with a sense of rollicking danger.




HAUER
DOCK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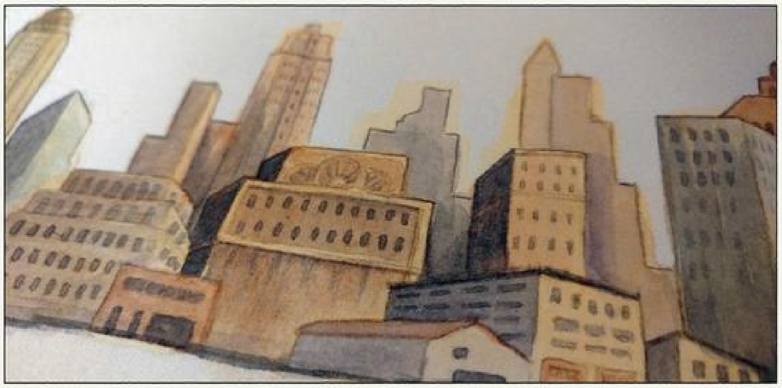
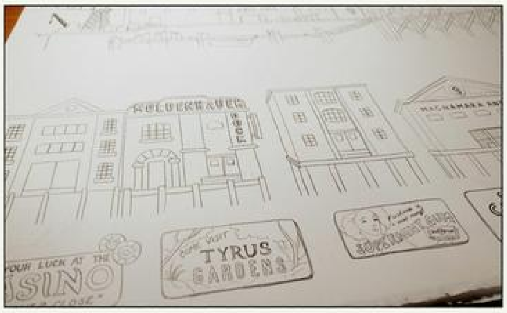
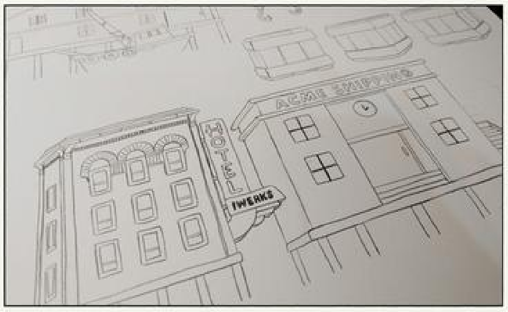
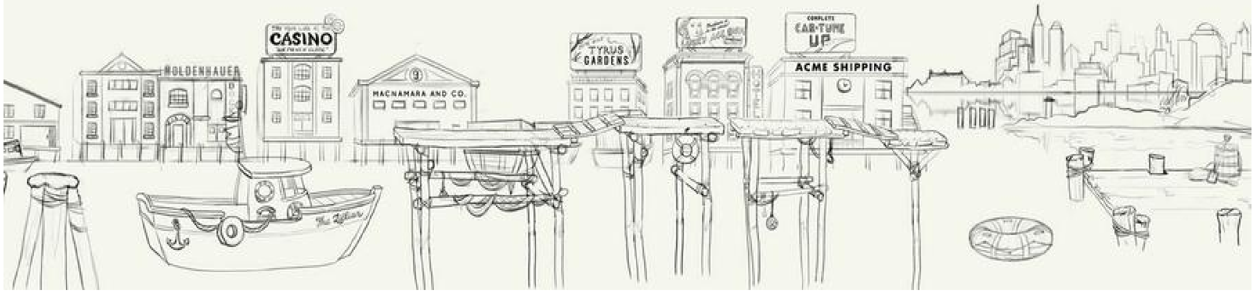



HOLDENHAUER
DOCK
MACNAMARA AND
YOUR LUCK AT THE
SINO
COME VISIT
TYRUS
GARDENS


ACME SHIPPING
HOTEL
TWEAKS

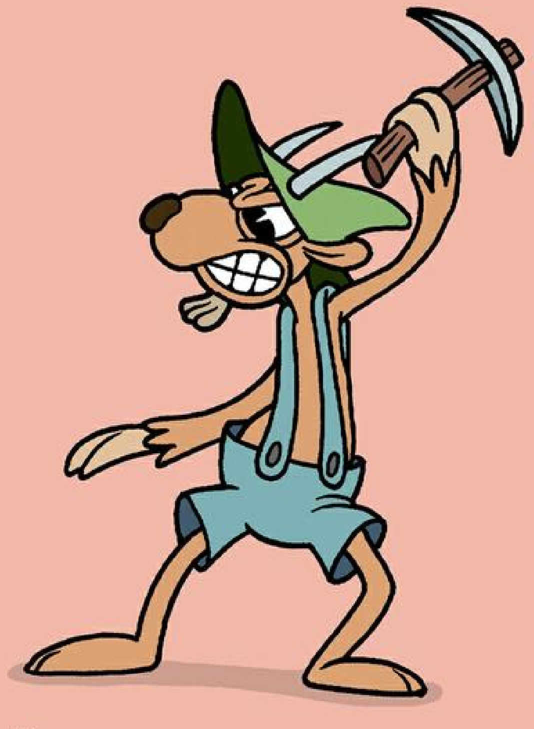

CASINO
HOLDENHAUER
MACNAMARA AND CO.
TYRUS
GARDENS
COMPLETE
CAR-TUNE
UP
ACME SHIPPING

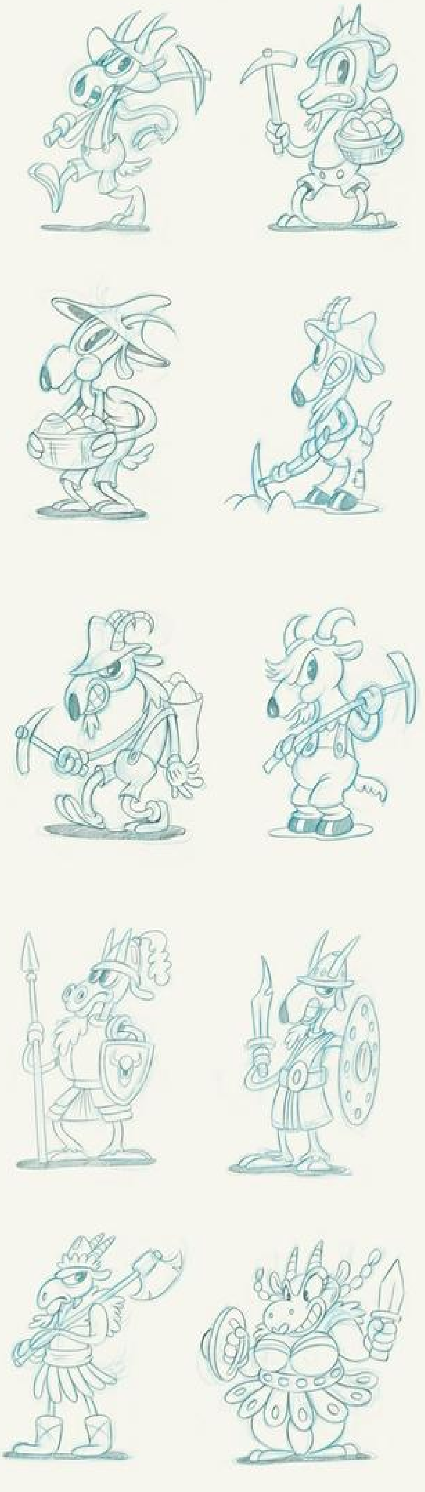
Run & Gun

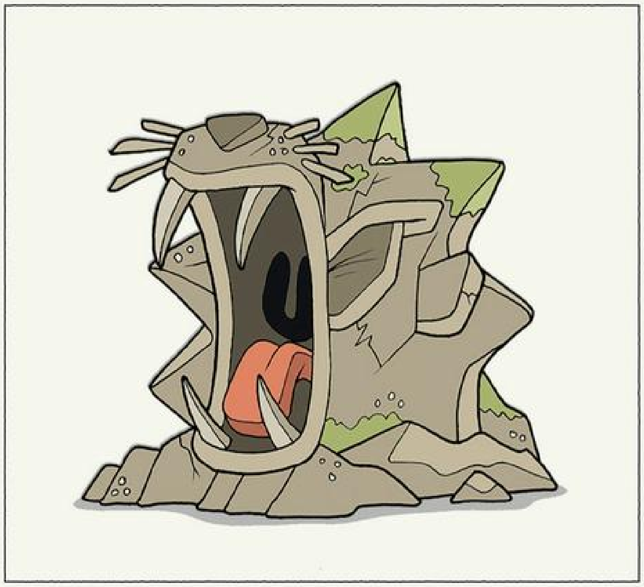
RUGGED RIDGE

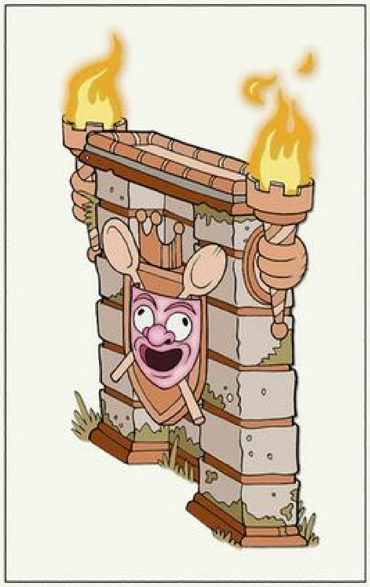
IT MAY NOT BE IMMEDIATELY apparent during your first visit, especially as you dodge the pickaxes of angry goat miners and run from a hulking cyclops, but Rugged Ridge is one of the oldest places in all the Inkwell Isles. Strewn with ancient stonework and abandoned monuments, this final run-and-gun level was our way of giving player's a glimpse at what remains of the historical past of the world Cuphead and Mugman live in, and hinting at the idea of a mythos surrounding utensils, bowls, chalices, and more. As to exactly what might have come before and what it all means? We always felt there was a joy to games that let the players' imagination run wild, leaving lots of room for interpretation. Like the Japanese role-playing games we loved growing up, we find the joy is in seeing and exploring the ruins on the mountain, not necessarily knowing everything about them.

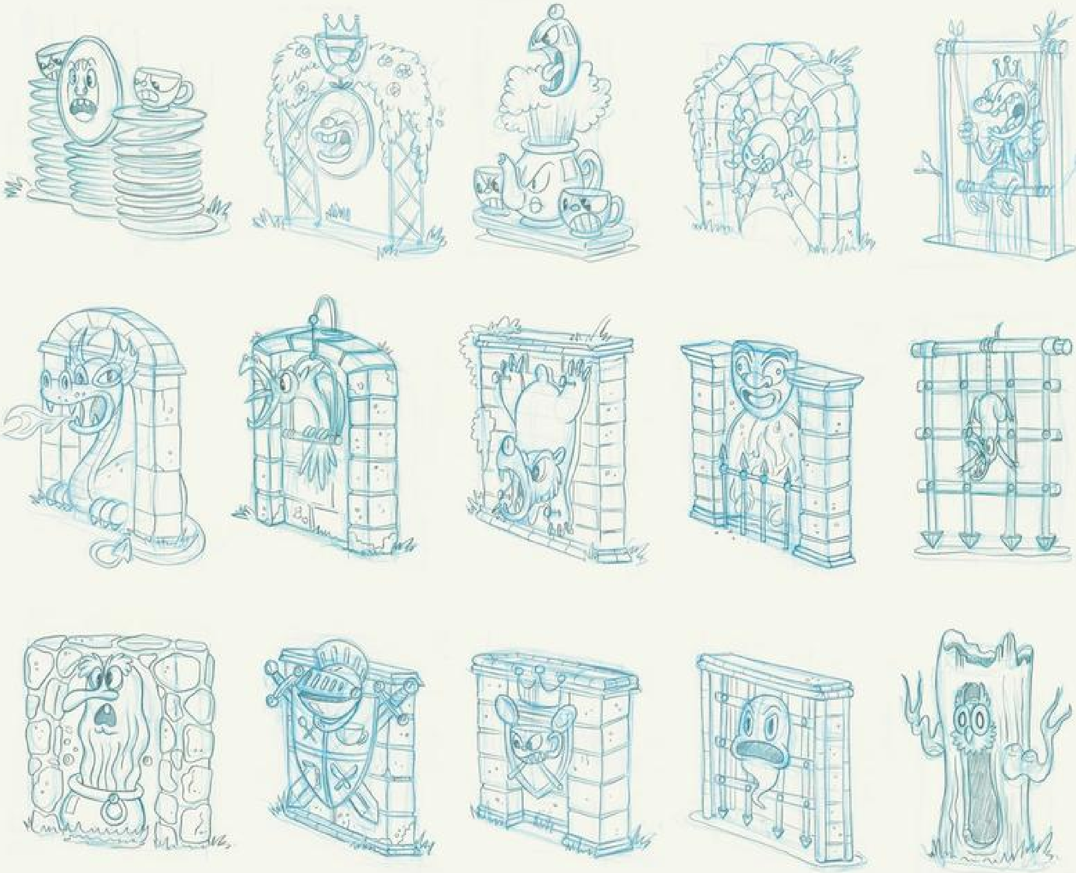
With that said, exploring *this* ancient place is no walk in the park. From fierce rock lions inspired by similar enemies in one of our personal favorite Sega Master System titles *Aztec Adventure* to stately guard walls (a nod to Konami's *Contra III: The Alien Wars*), Rugged Ridge was meant to be one final test of your platforming mettle.



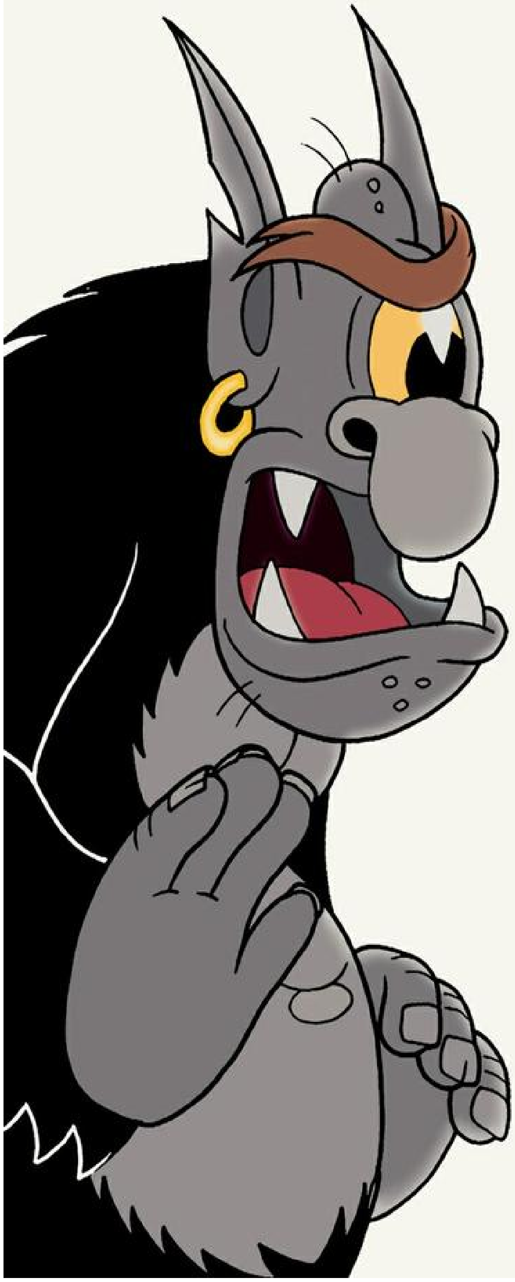


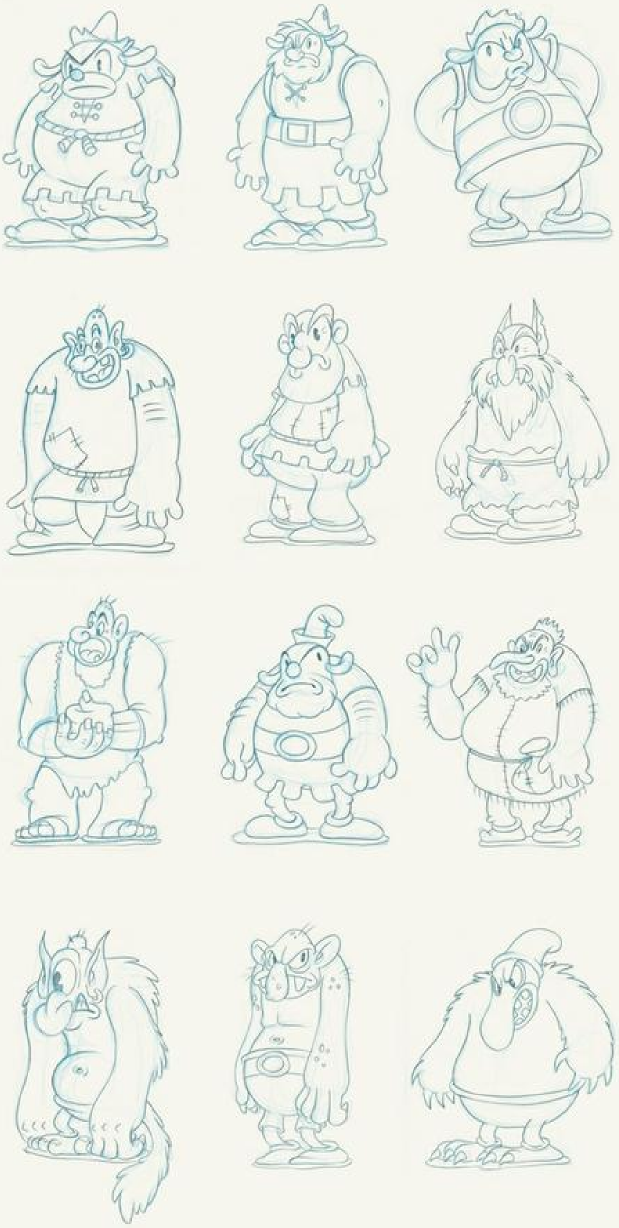


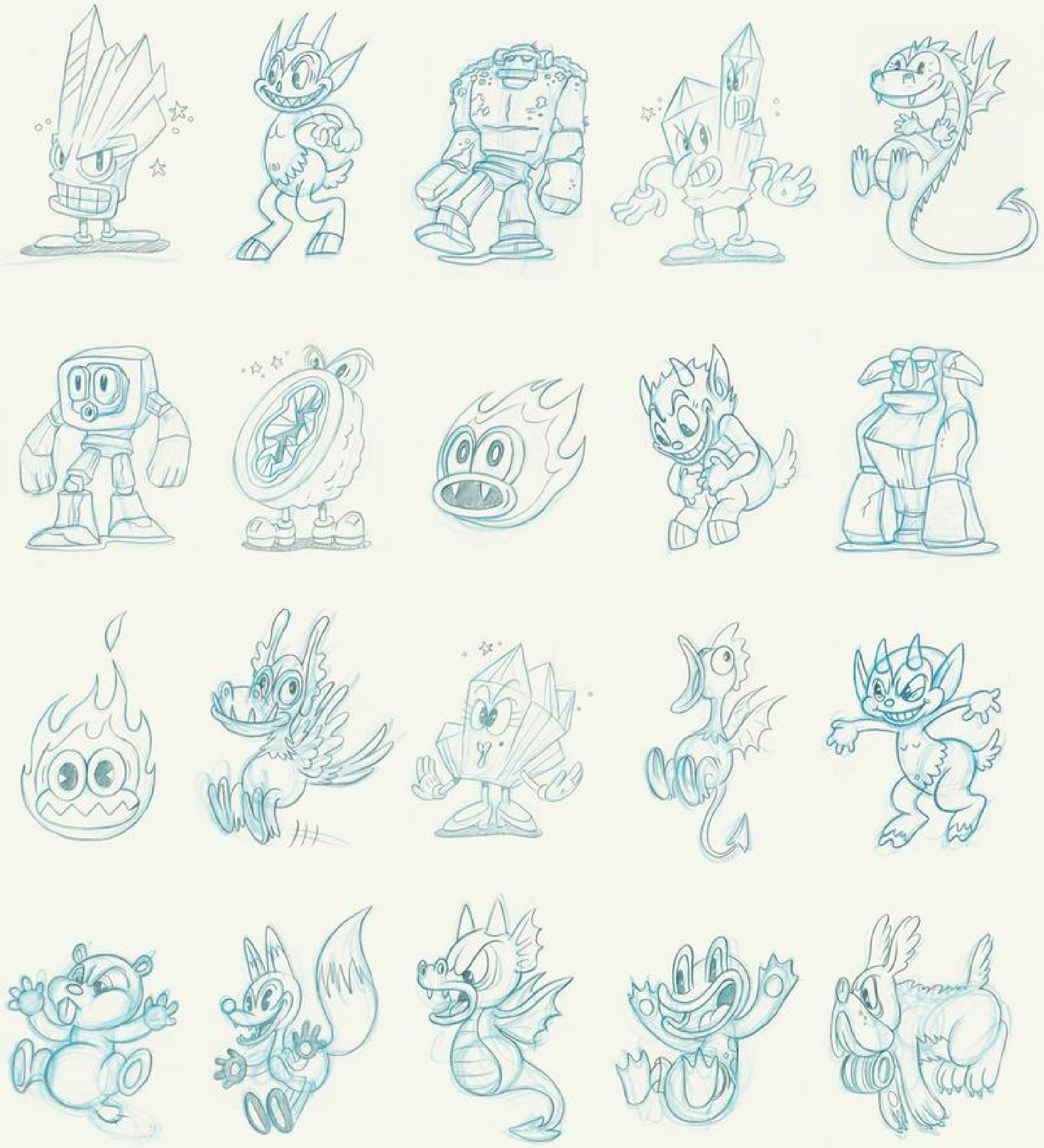


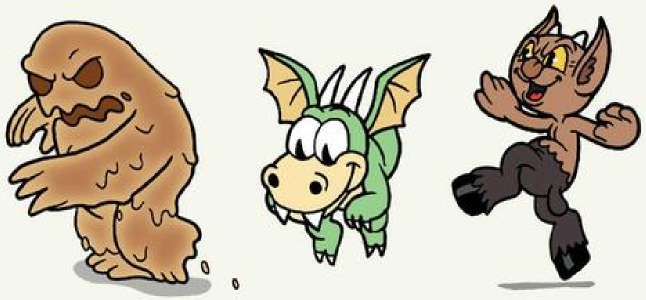


Below are some of animator Tina Nawrocki's concepts for Rugged Ridge's most towering threat: a giant cyclops that chases you through the final part of the level! In keeping with the other enemies in the level, we gravitated toward more beastly designs, ultimately settling on a one-eyed version with influences such as Disney's 1933 Mickey cartoon *Giantland* and Fleischer Studios' *Popeye the Sailor Meets Sinbad the Sailor* (1936). Originally set to appear earlier in the level, throwing rocks up into the air from the background (which would become hazards in the main play space), the cyclops was reworked to fit better within the overall design of Rugged Ridge. Instead, he plays the role of a run-and-gun "boss fight" of sorts, capping off the game's platforming stages with a big finish. Another Easter egg: he has the very same gold earring as Captain Brineybeard, hinting at a possible shared past between the two of them!

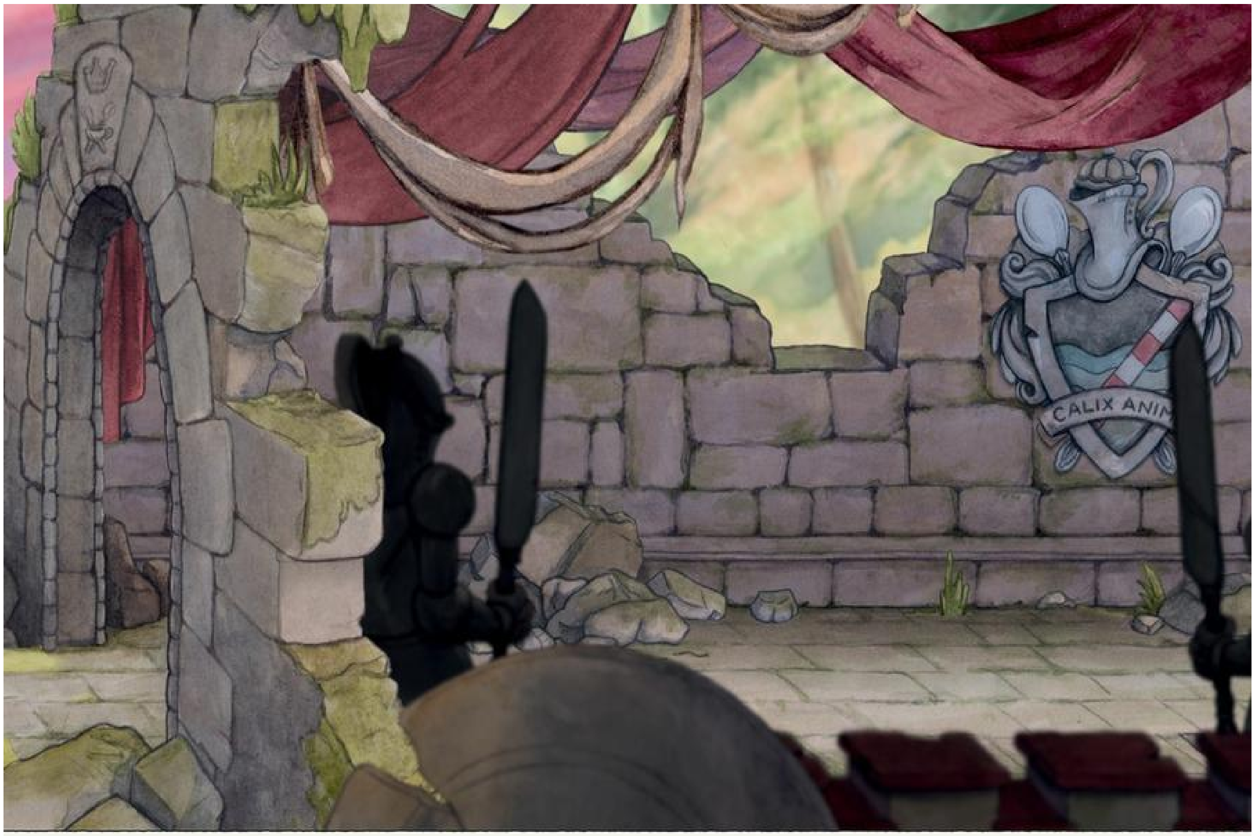




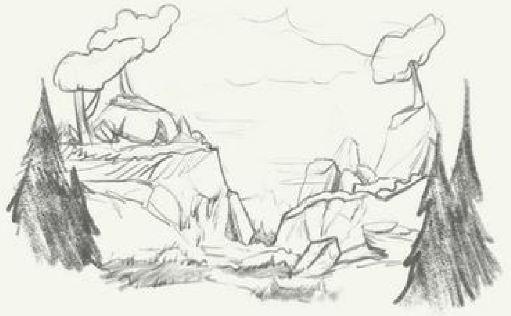


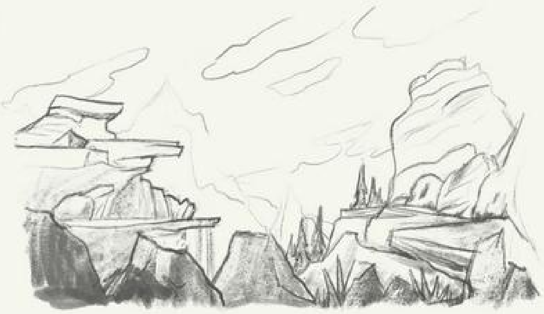


Art exploration for possible Rugged Ridge enemies, many of them ultimately unused. In the end, we honed in on a series of baddies that fit best within the level's more classic interpretation of a high-fantasy past, including a small dragon that you can imagine might have some ties to the fierce Grim Matchstick from Inkwell Isle Two.



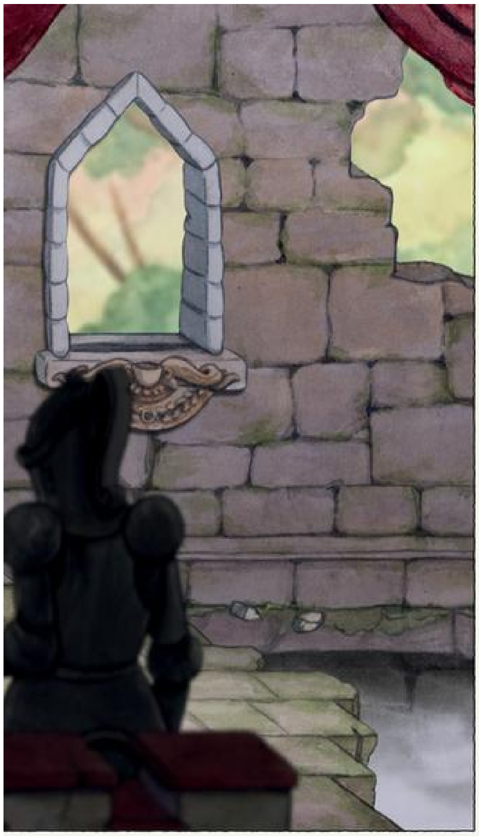
Rugged Ridge Background

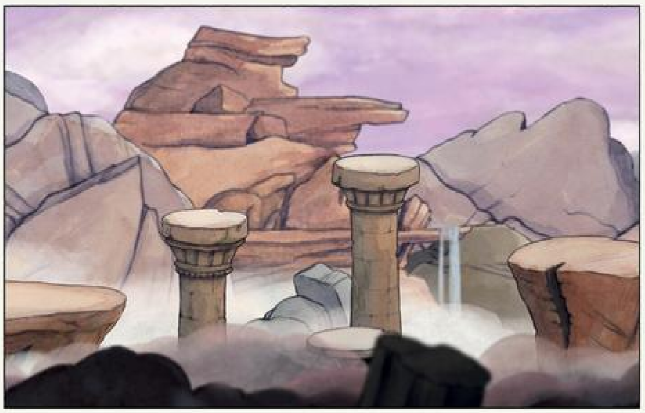


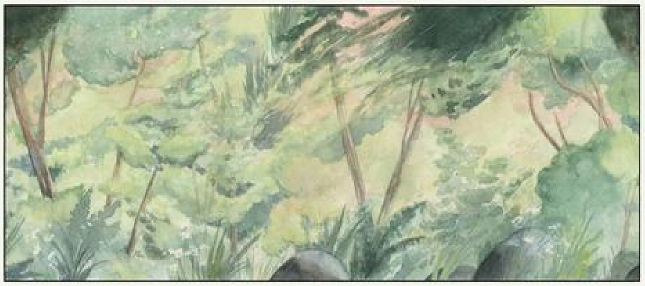


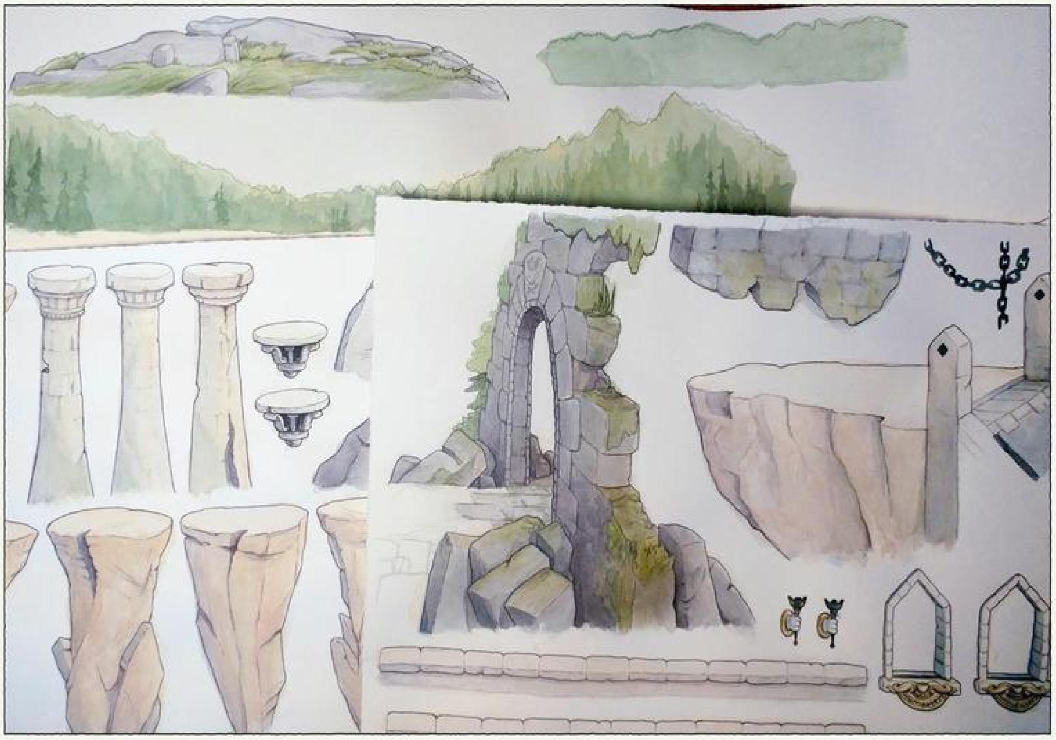
WHEREVER POSSIBLE IN *CUPHEAD*, we liked the idea of level backgrounds going hand-in-hand with the look and feel of that level's location on the world map. With Rugged Ridge being tucked in the mountains surrounding Inkwell Isle Three, it felt only natural for there to be ancient ruins populating the level. Notable game nods in the architecture of Rugged Ridge include entries in Konami's *Castlevania* series, *Castlevania IV* and *Castlevania: Bloodlines*. As for toons, two 1933 Betty Boop favorites, *Snow-White* and *The Old Man of the Mountain*, were both filled with the kind of nature and architecture that we wanted to evoke in a level like this.

The crest painted on the wall—complete with Cuphead's signature straw, two crossed spoons, and various headwear—bears the latin phrase "*Calix Animi*," which loosely translates to "chalice of courage." This, combined with statues dotting the landscape of Rugged Ridge (such as one depicting a humanoid version of Legendary Chalice), further reinforces the idea of mysteries across the Inkwell Isles that stretch far into the past.





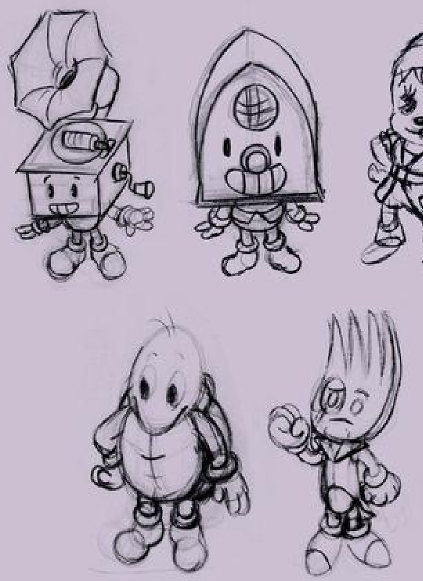




Inkwell Isle Three Residents

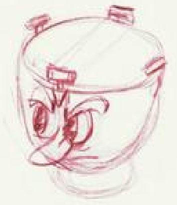
NON-PLAYABLE CHARACTERS

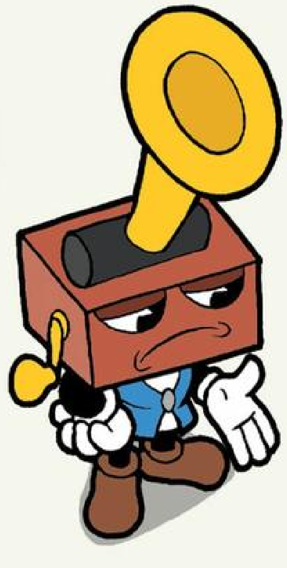
WITH THE "BIG CITY" THEME of Inkwell Isle Three, we wanted an accompanying set of NPCs that felt right at home. From the elite snobbery of a high-class fork, to the dueling music critics who frequent the theater, to those looking for fun and relaxation at the waterfront, we tried to hone in on a cast that would exude the personality of the world, while also fitting in with the rest of our non-playable characters from across the game. In many ways, these NPCs are also the culmination of our idea to dole out miniquests and useful information for players through colorful characters. To that end, a couple of the quests in Isle Three are among the hardest in the game, but ultimately deliver the most substantial rewards. Pictured right: an early look at our Isle Three gang as they were being refined by animator Danielle Johnson.

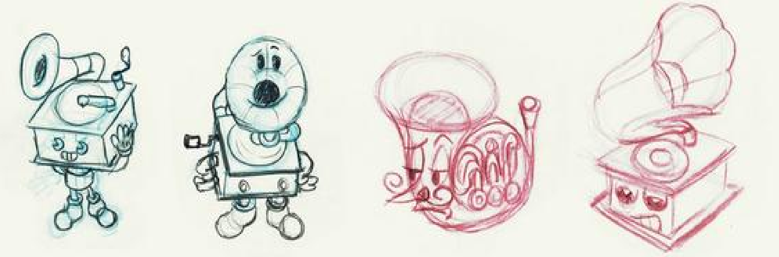


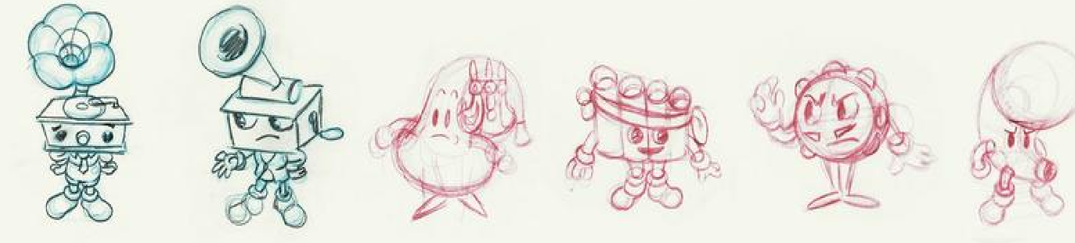
Ludwig

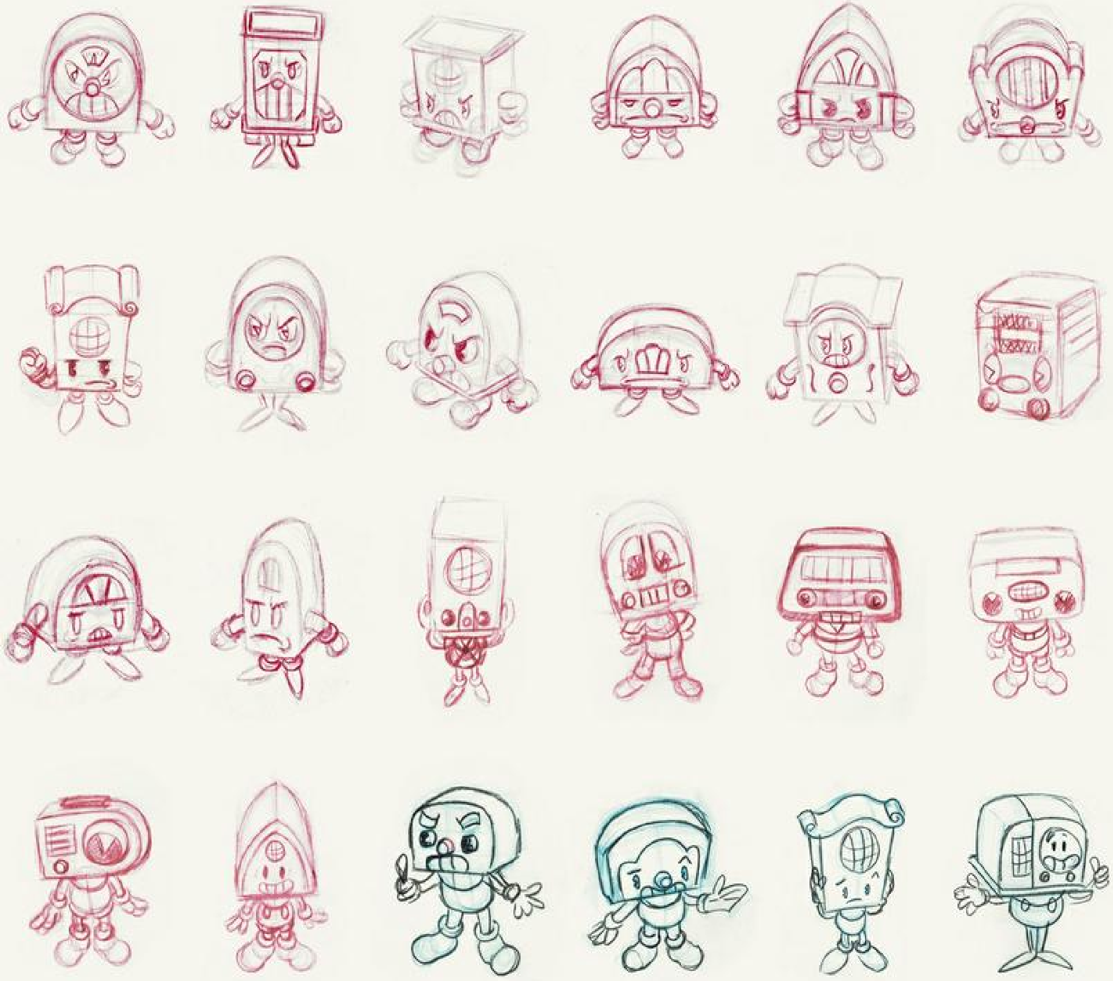
LUDWIG THE GRUMPY GRAMOPHONE has simple, classical tastes, and doesn't care for all that fancy-schmancy new radio technology, thank you very much. Both he and his rival Wolfgang came about as a way to make use of the piano versions of each Inkwell Isle's theme tune, which composer Kristofer Maddigan had prepared during his recording sessions for the game's soundtrack. Below are early explorations for a version of Ludwig as instruments instead of a music player.

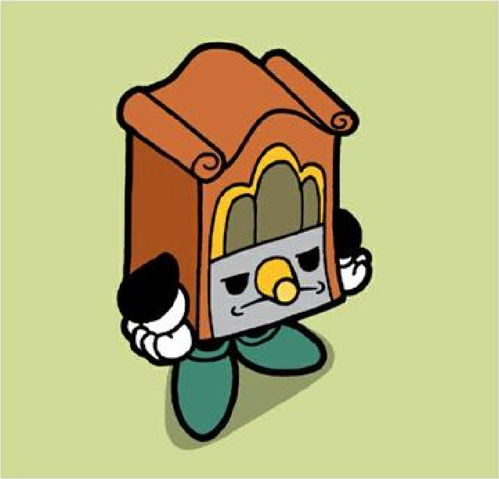










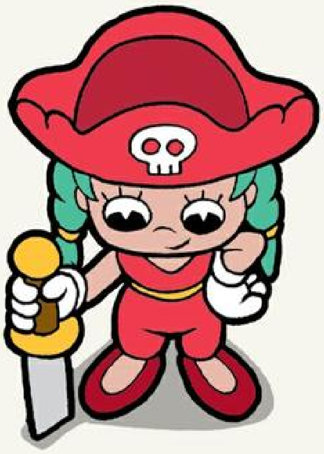


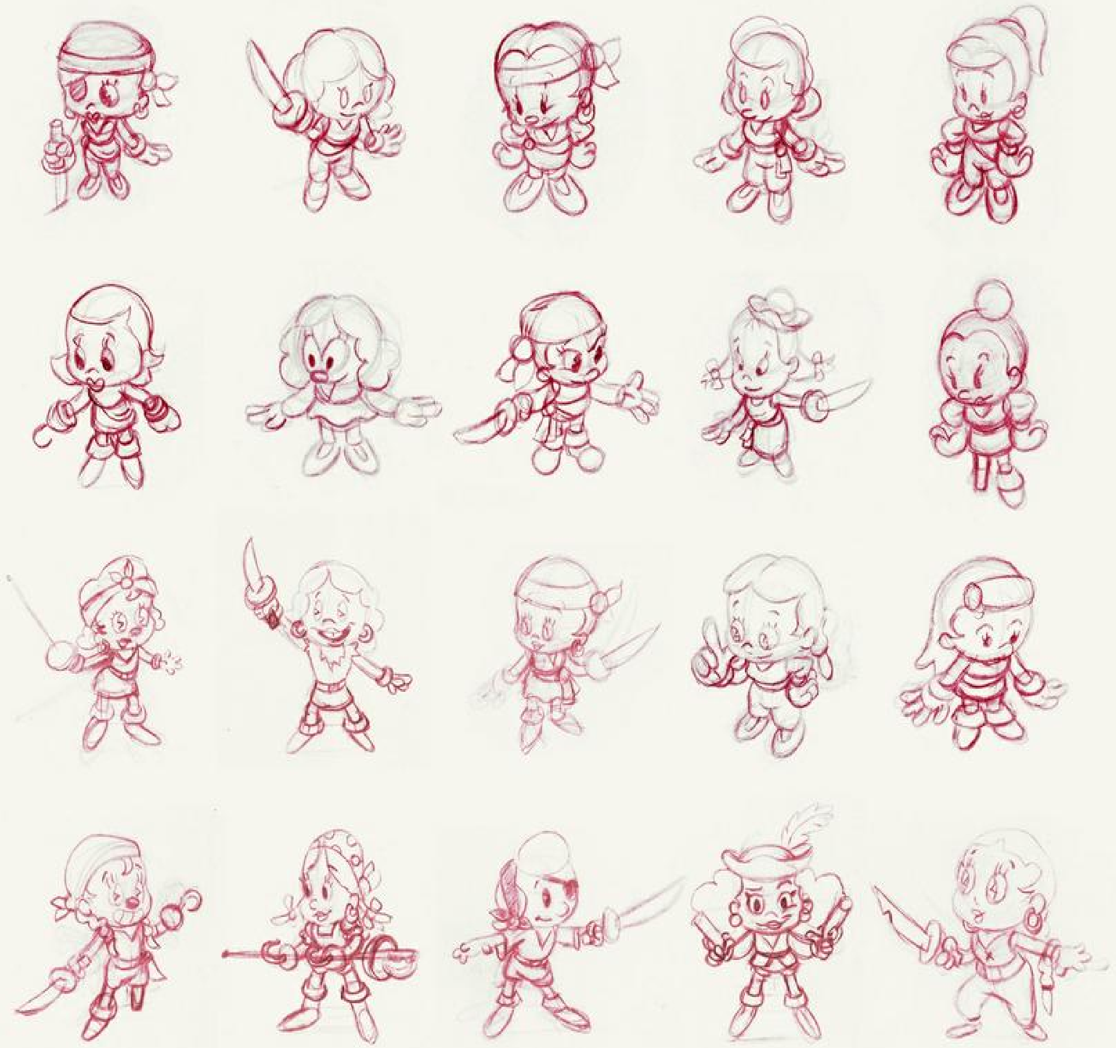
Wolfgang

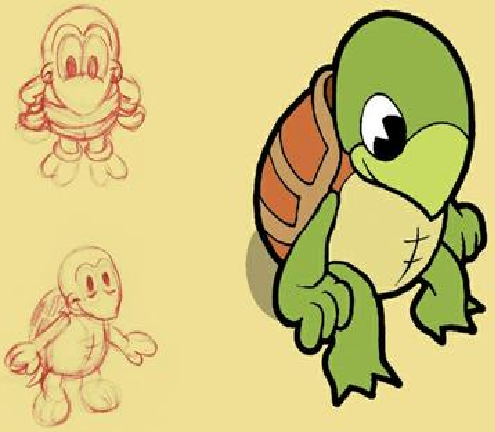
EVER BOASTFUL AND STUBBORN, Wolfgang the radio insists that his music is the only way to go, no matter what the "minimalist buffoon" Ludwig says. By walking back and forth between the two of them to carry on a conversation, players eventually unlock access to those piano tracks, but can always return to Wolfgang to hear the orchestral versions of the Isle themes instead. Like the competition between gramophone and radio, *Cuphead* too is a marriage of clashing forces—with its simple, classic gameplay and much more elaborate visual style. Seemingly in opposition to each other, but still harmonious.

Cora

CORA THE PLUCKY AND ADVENTUROUS pirate gal was originally going to give players bespoke advice based on which boss they were having the most trouble with, using a look at your death counts against the various bosses which you may not have beaten yet. However, that ultimately proved out of scope for development, so we shifted focus to more general advice to tinker with your charm and weapon load out. This reminder is particularly relevant for both of the bosses to whom she's nearest, Rumor and Brineybeard, as careful changes in your weapons and charms can make those fights much more manageable!

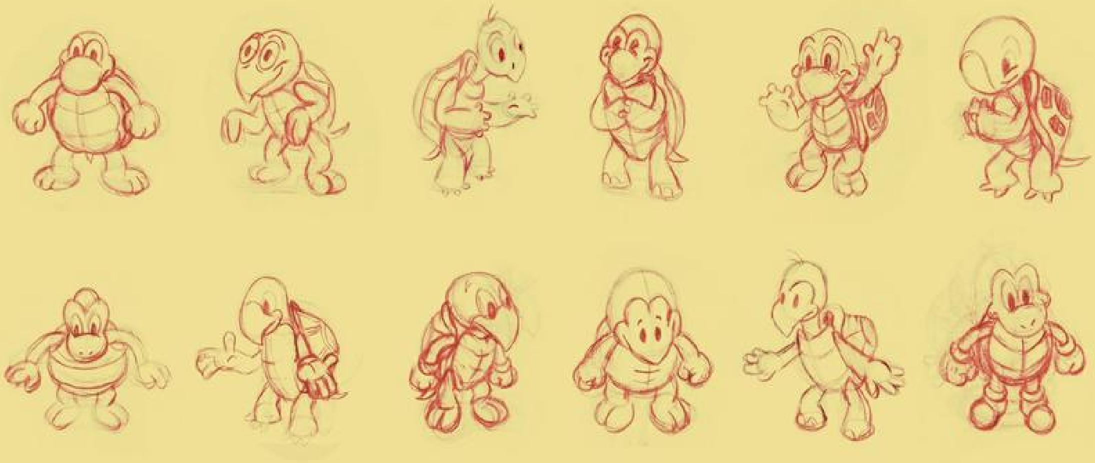


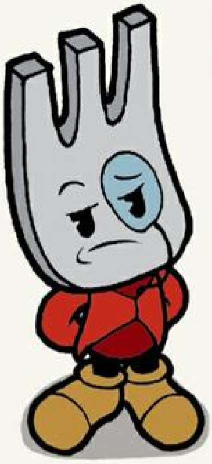


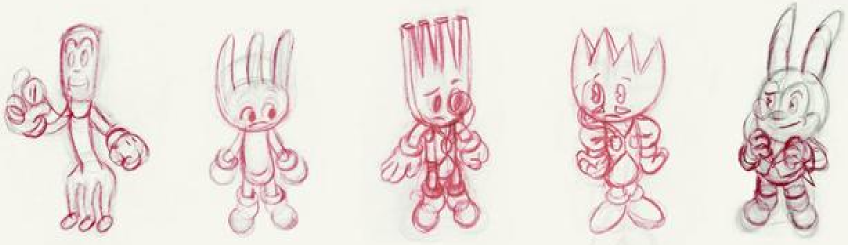


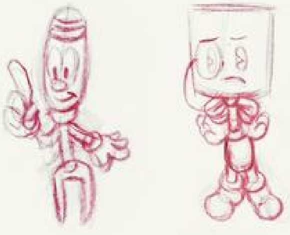
Tully

TULLY (A SURNAME MEANING QUIET OR PEACEFUL) spends his days relaxing by the harbor front. He tasks the players with achieving a hidden "P" (pacifist) rank on all the game's run-and-gun levels by making it to the end of each without killing any foe. In exchange, players get access to a black-and-white filter they can apply to the game. Fun fact: turtles can see one extra color that humans cannot, which ties into the idea that over his long age he has learned to see the world differently (and so can you, in black and white).



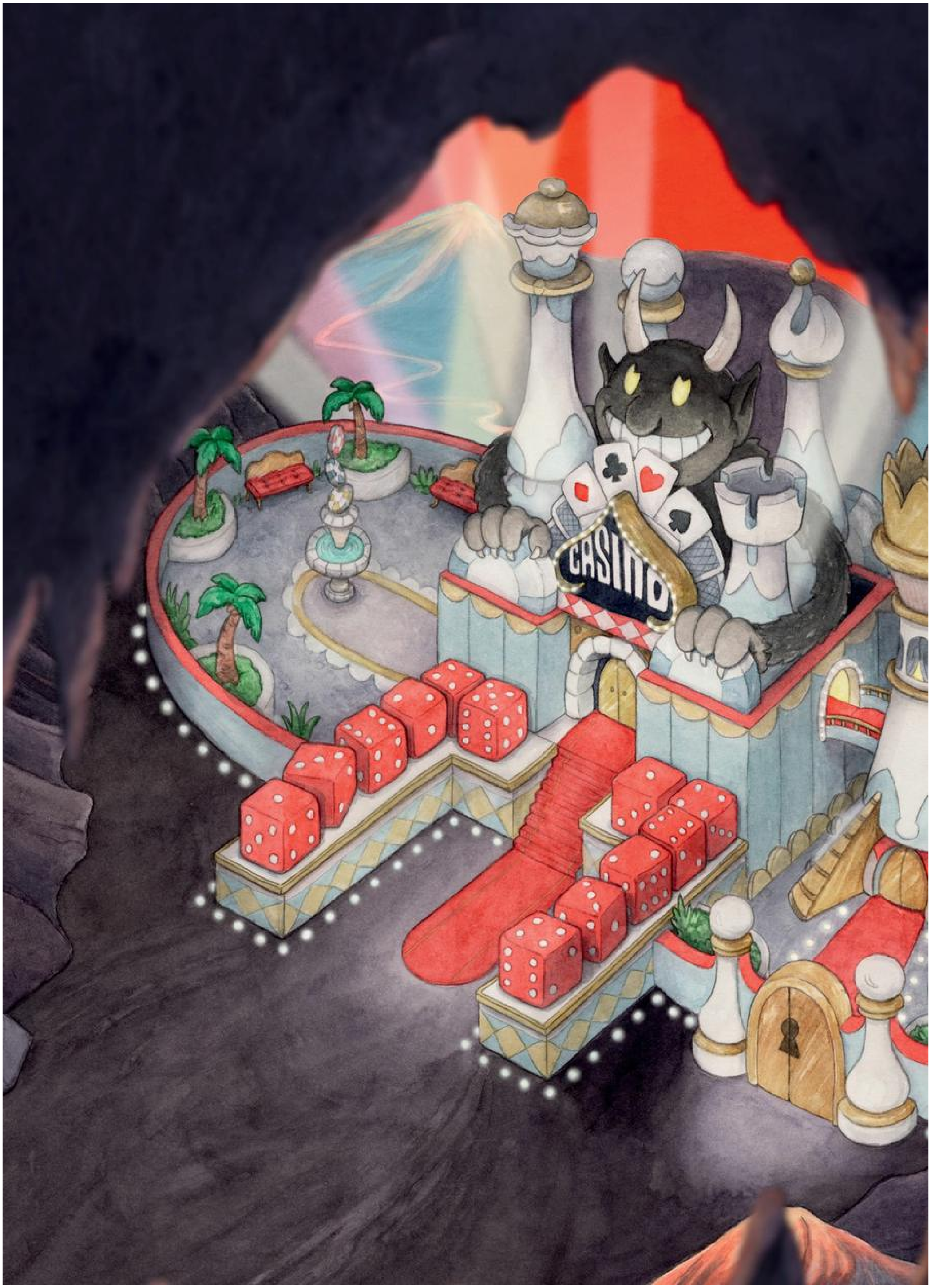


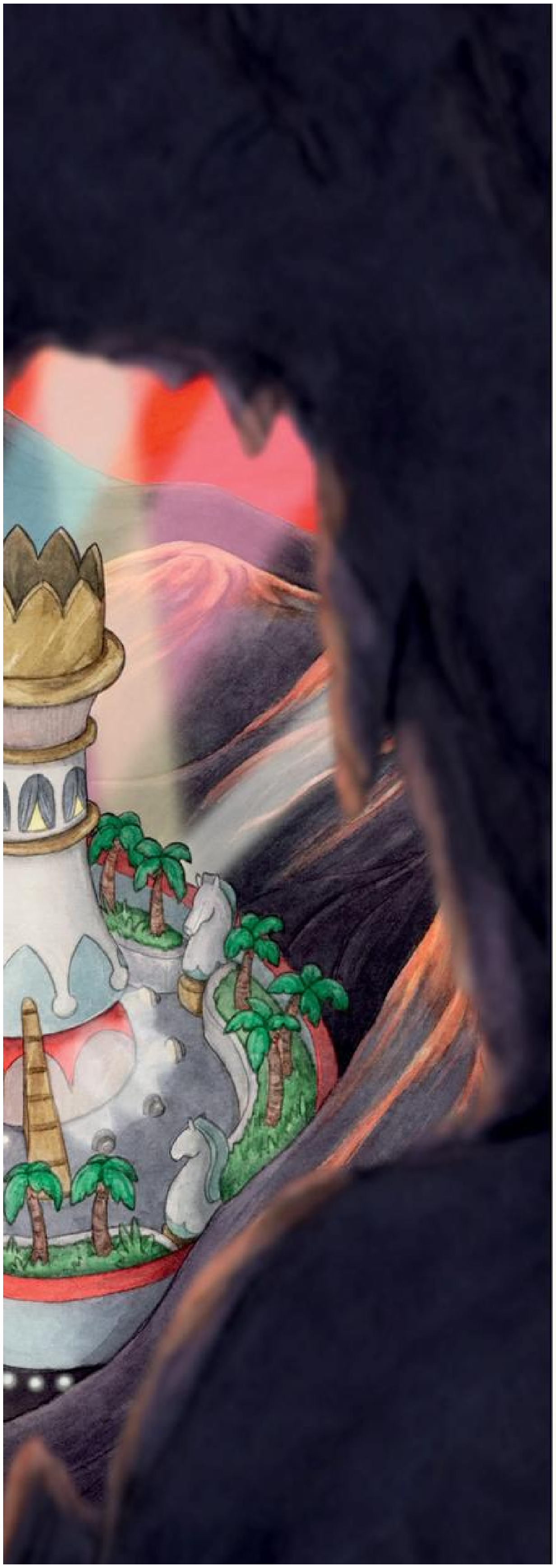




Silverworth

WITH HIS THREE TINES PERFECT for handling shellfish, shrimp cocktails, and dainty dessert, Silverworth the fork is a snooty, high-class gent with a very exciting reward for you . . . if you're up to the challenge! If you return to him after achieving an A- rank or higher on fifteen different levels, he unlocks a two-tone filter mode that allows you to play the game through the lens of vintage two-tone animated films.


CASINO



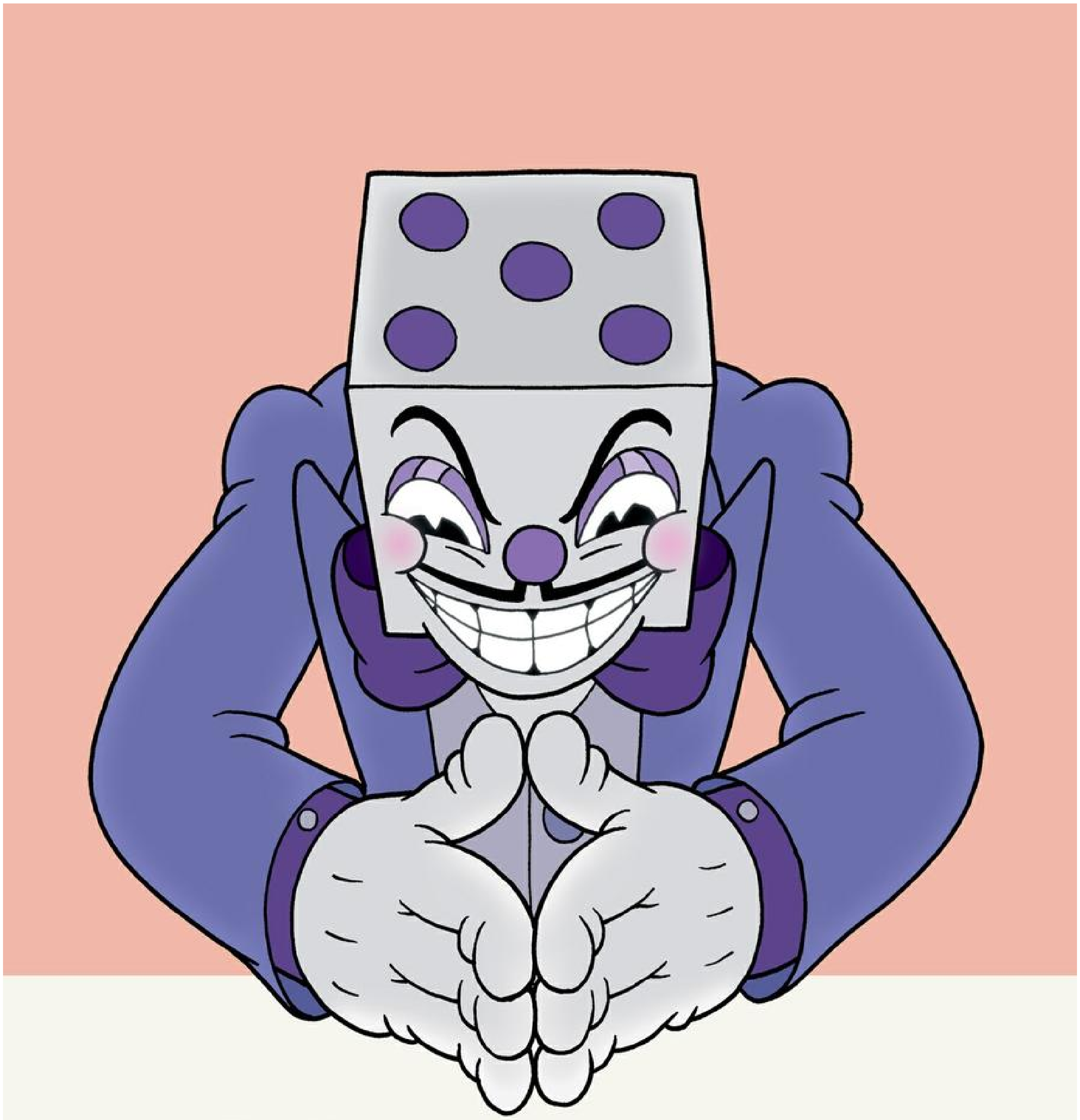
Chapter VI:

Inkwell Hell

A BLOOD-RED SKY LOOMS OVERHEAD, and even through the glare of bright spotlights and flashing signage, a massive replica of The Devil's face can be seen peering down at all who enter. This is the casino in Inkwell Hell itself, and it's the last stop on Cuphead and Mugman's journey to save their souls. Since the final section of *Cuphead* is essentially an Inkwell Isle map encompassing a single lone structure, we put a lot of focus on ensuring the casino and surrounding background elements had a strong sense of atmosphere and personality.

Even in the early brainstorming phase, we were drawn to the idea of a bright red sky, and this visual element set the tone of overall scene as it was built out. Additionally, we drew from the mood of the Valley of Bowser, from Nintendo's *Super Mario World*, which inspired the idea of the dark, ominous cliffs as the framing device for the map. As for the casino itself? Together with painter Caitlin Russell, we dove deep and researched real casinos, theaters, and art deco buildings of the era, while also drawing influence from *Pinocchio*'s Pleasure Island and the 1941 Merrie Melodies short *Hollywood Steps Out*.

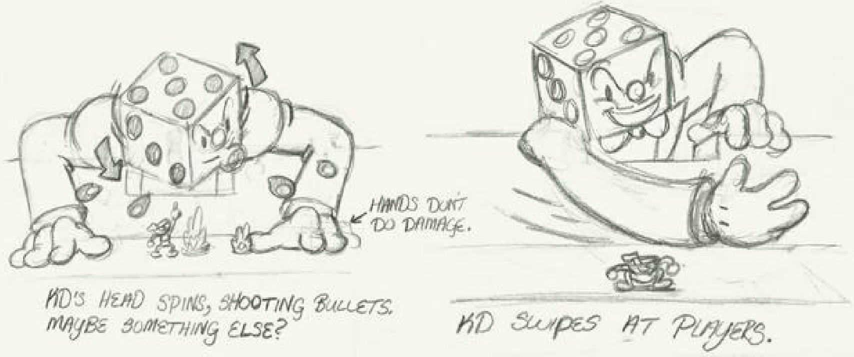
Fun fact: animator Joseph Coleman initially proposed pushing a Russian architectural motif, some elements of which still linger in the chess pieces seen on the roof.

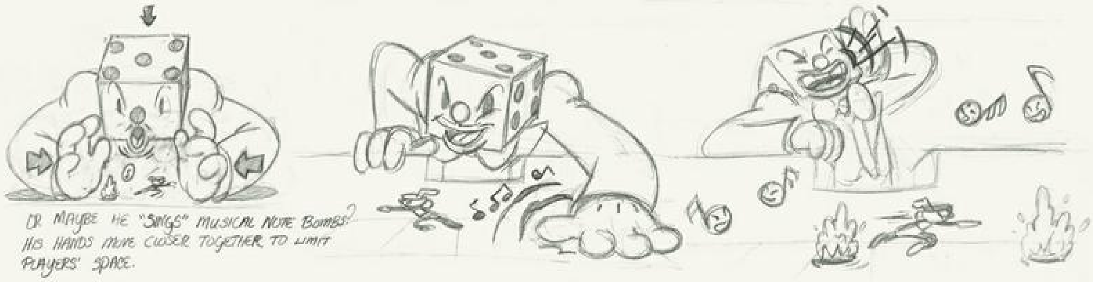


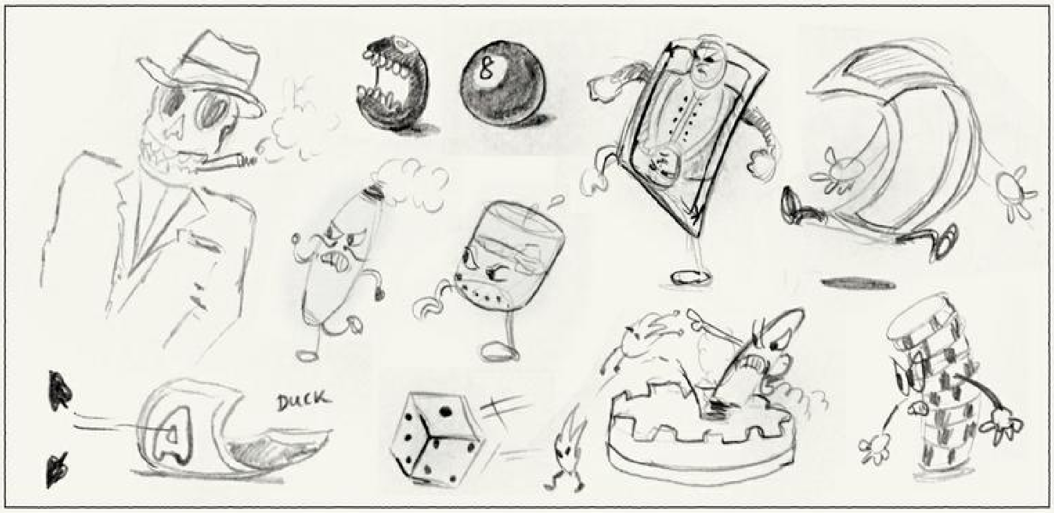
King Dice
in
"ALL BETS ARE OFF!"

THE DEVIL MAY BE EAGER to collect the soul contracts you owe him, but like any good casino owner, he first leaves the dirty work to his pit boss. There is almost as much history in video games of set piece battles with the penultimate boss as there is with final bosses, and we knew from early in development that we wanted The Devil to have a dastardly right hand helping him do his bidding. That right hand is King Dice, a conniving consigliere with confidence and pizzazz befitting a musical showman—our loving amalgam of a Dick Tracy mobster, Cab Calloway, and Clark Gable, all by way of Batman's classic vaudeville villain the Joker (with a little bit of *Pinnochio*'s Coachman thrown in there for good measure).

Concepts from animator Joseph Coleman of different possibilities for the sweeping attack that ends King Dice's fight. While early ideas centered around visual puns based on the dots on his die and his musical personality, we ultimately leaned in the direction of casino imagery for his screen-filling dancing card attack.

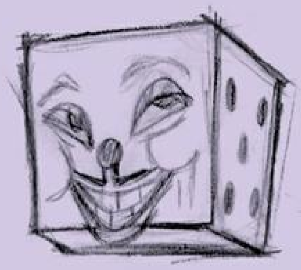

HANDS DON'T DO DAMAGE.
KD'S HEAD SPINS, SHOOTING BULLETS. MAYBE SOMETHING ELSE?
KD SWIPES AT PLAYERS.

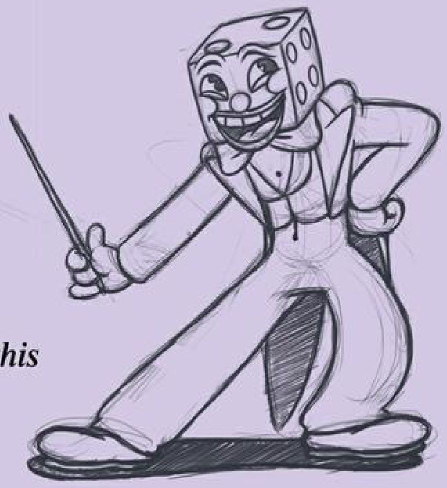

OR MAYBE HE "SINGS" MUSICAL NOTE BOMBS? HIS HANDS MOVE CLOSER TOGETHER TO LIMIT PLAYERS' SPACE.

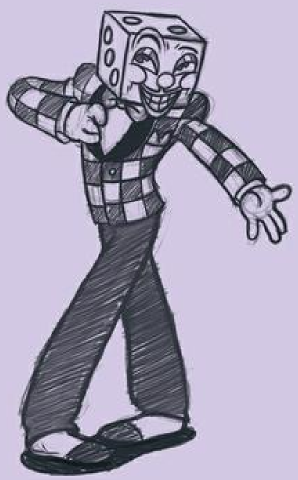


Where things really gelled, though, both for King Dice's character and his unique boss battle, was in thinking back to our love of legendary game developer Treasure's 1993 run-and-gun game, *Gunstar Heroes*. Specifically, the grueling "Dice Palace" stage, in which players throw a die and take on a different challenging fight based on the number they get—all in service of collecting a magical gem. This level (and more broadly, the amazing work of Treasure as a developer) left a lasting impression on us, and we couldn't resist the idea of paying homage with a level that was essentially a casino game comprised of different bosses—a boss rush within a boss rush game! Knowing "Dice Palace by way of 1930s cartoons" was our design goal really solidified the character of King Dice for us, bringing his aesthetic into focus.

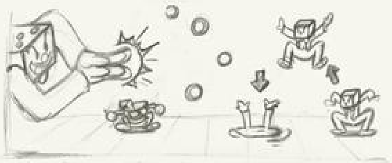
A detail from King Dice's style guide, by the way, is that he must always be drawn with the proper die sides showing, matching the real sides of a die!



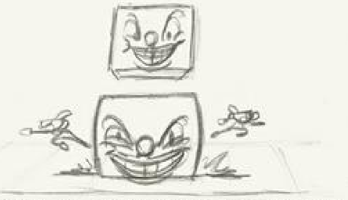




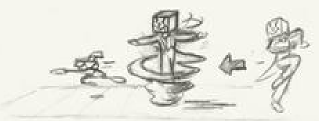
"So clever, so dapper,
ya betta' believe this
dice is loaded."



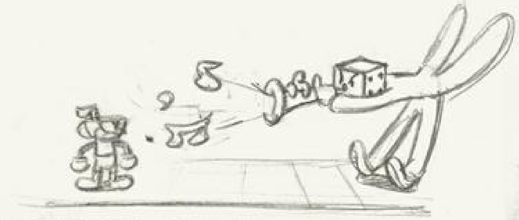
KING DICE TELEPORTS INTO FLOOR. APPEARS OFF SIDE OR TOP OF SCREEN TO ATTACK?



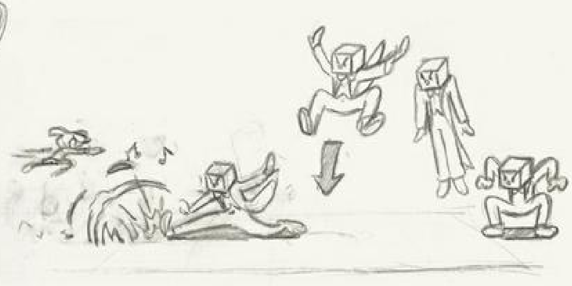
MAYBE HE CRASHES FROM TOP OF SCREEN AS A GIANT DICE HEAD!

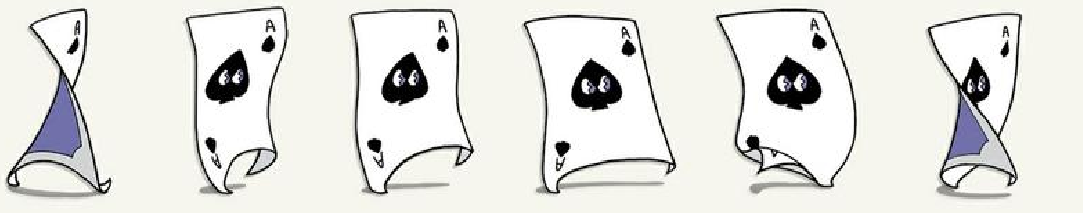


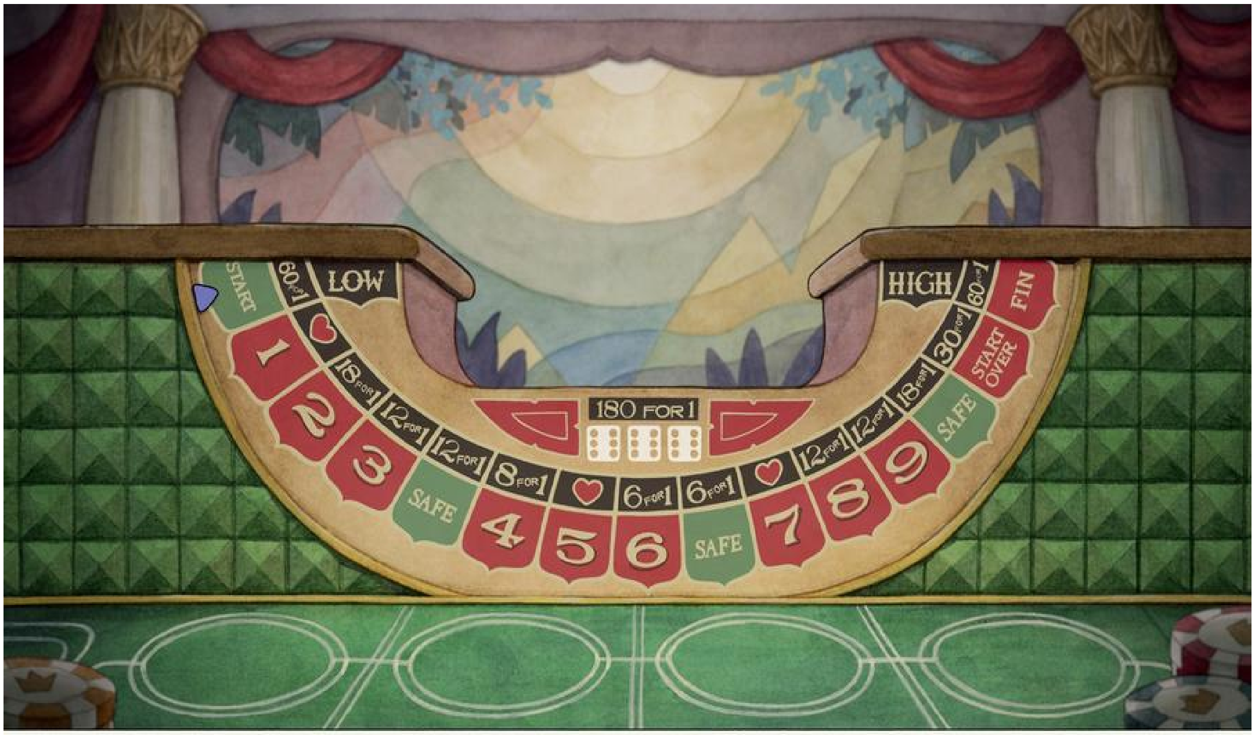
KING DICE DOES A SPINNING DASH TO HALF OF SCREEN.

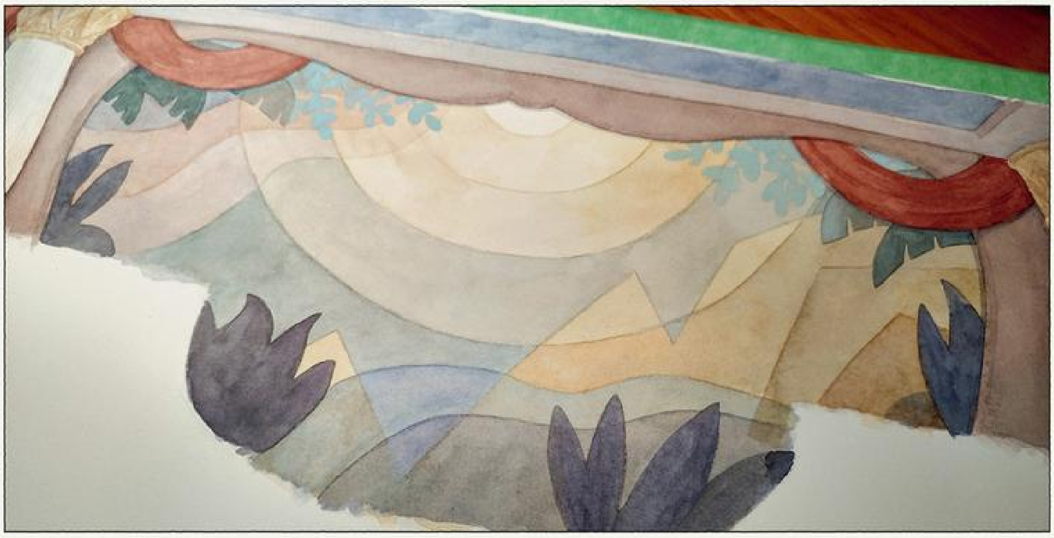


KING DICE'S MOUTH TURNS INTO INSTRUMENT. SHOOTS MUSIC NOTES.



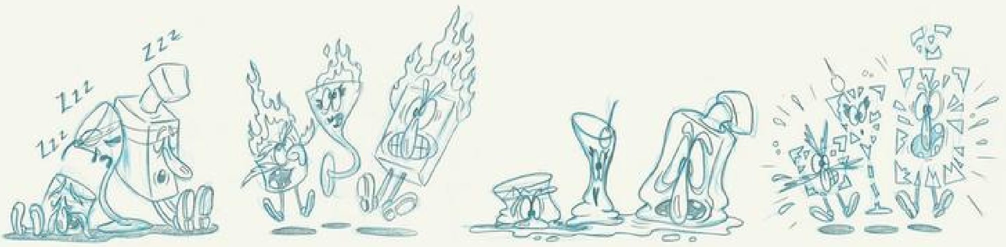


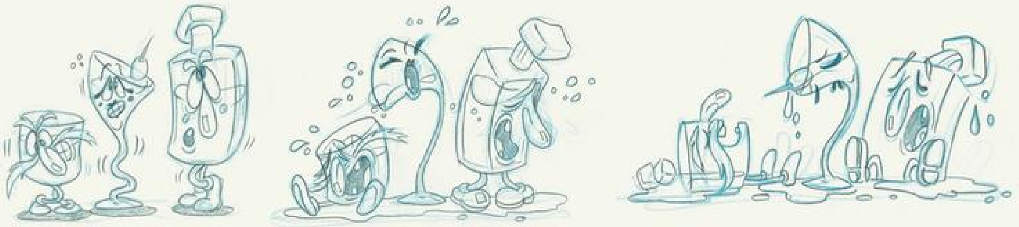

START
60 for 1
LOW
1
18 FOR 1
2
12 FOR 1
3
12 FOR 1
SAFE
8 FOR 1
4
5
6 FOR 1
6
6 FOR 1
180 FOR 1
SAFE
7
12 FOR 1
8
12 FOR 1
9
18 FOR 1
30 FOR 1
SAFE
START OVER
HIGH
60 FOR 1
FIN

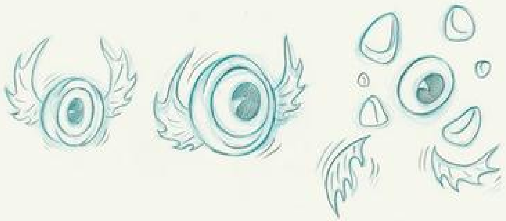


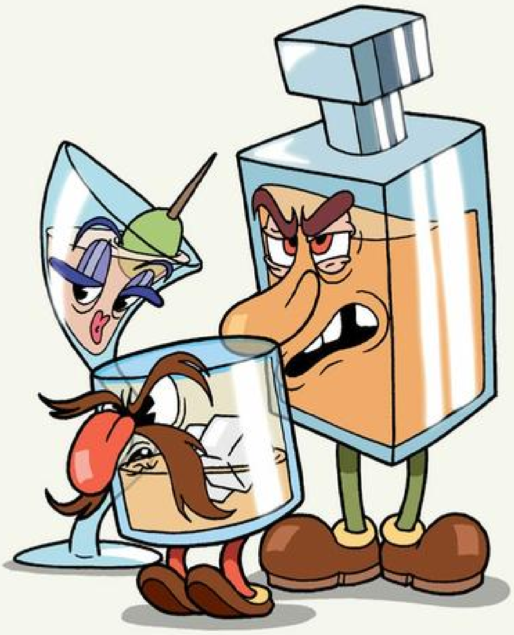
All Bets Are Off! Background

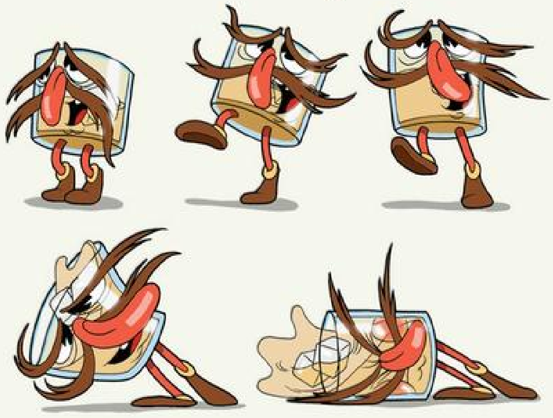
SPRINGBOARDING OFF OF A SUGGESTION from Joseph, we pointed painter Caitlin Russell toward legendary American painter Aaron Douglas as a source of inspiration for the background mural in this stage. A seminal figure in the Harlem renaissance, Douglas's massively influential murals often used bold colors and simple, legible shapes in concert. Meanwhile, the game board itself, one of the very few interactive backgrounds in *Cuphead*, is a little-known reference to an early 20th century dice game named Grand Hazard, whose game board we simplified for design purposes. Originally, we had ambitions of tying each and every miniboss players fought to their corresponding number on the board with some sort of prominent aspect of their look. However, in refining the patterns down to the ones that felt best to play, we largely moved away from this idea. Notably, Mangosteen the 8-ball is still the fight assigned to the "8" spot on the game board!





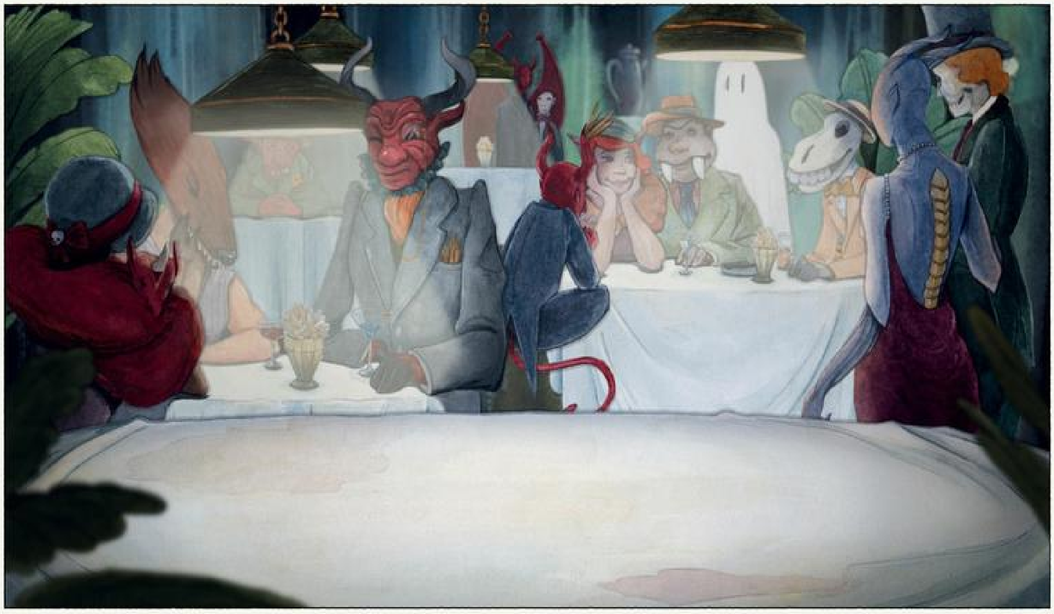


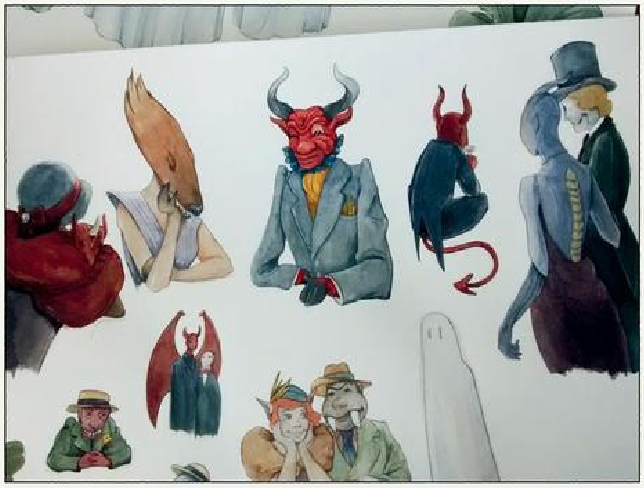




Tipsy Troop

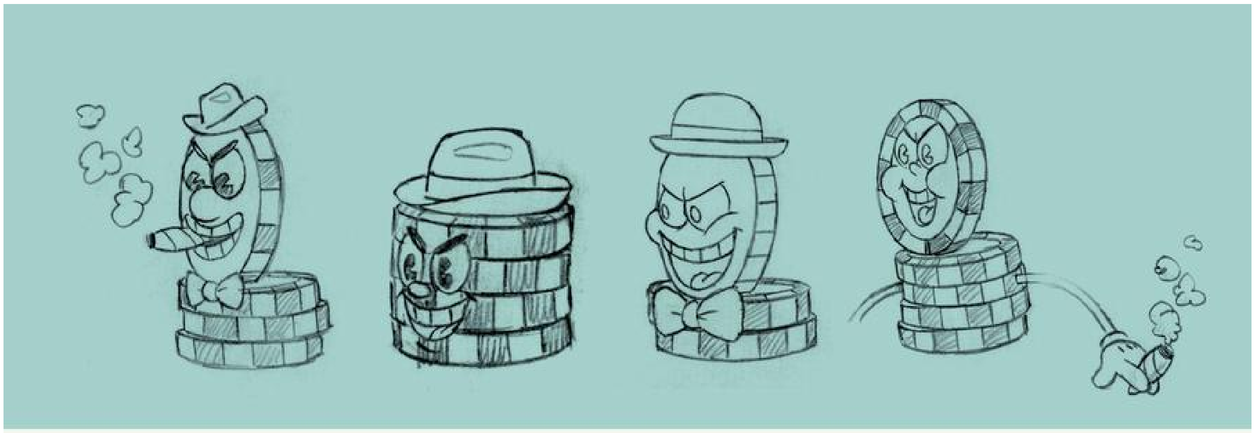
GINETTE THE SURLY GIN MARTINI, Rumulus the short-tempered bottle of rum, and Ol' Ethan the bumbling glass of scotch. Individually, they're a headache waiting to happen, but together they're the Tipsy Troop—a trio of bothersome boozy baddies! A call out to the alcohol peppered throughout the less regulated toons of the pre–Hayes Code 1930s, this miniboss represents a particularly unlucky roll in King Dice's minigame, as it's somewhat tougher than the other fights. This is owed to a unique design balance which sees the fight start off at its most difficult, and ease up as you defeat each drink. Above you can see concepts from Tipsy Troop animator Tina Nawrocki for the trio's final group death pose; the mandate for these smaller King Dice boss fights was to really go for over-the-top final poses to imbue each character with as much personality as possible in the short time you spent with them.

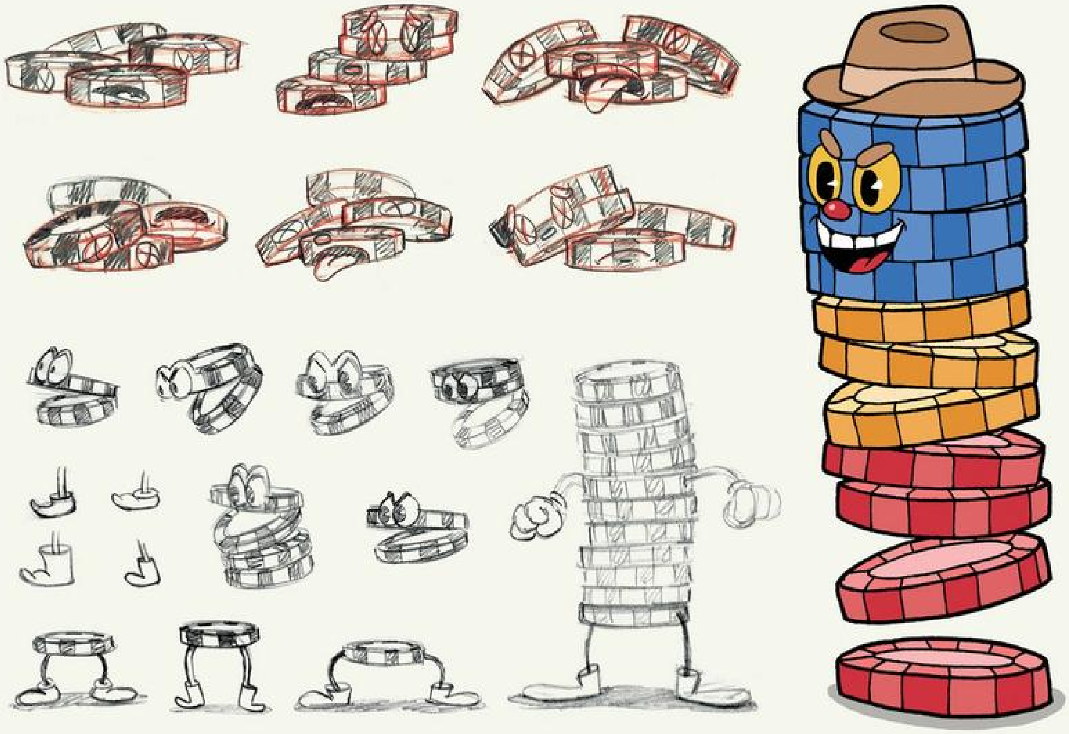




Tipsy Troop Background

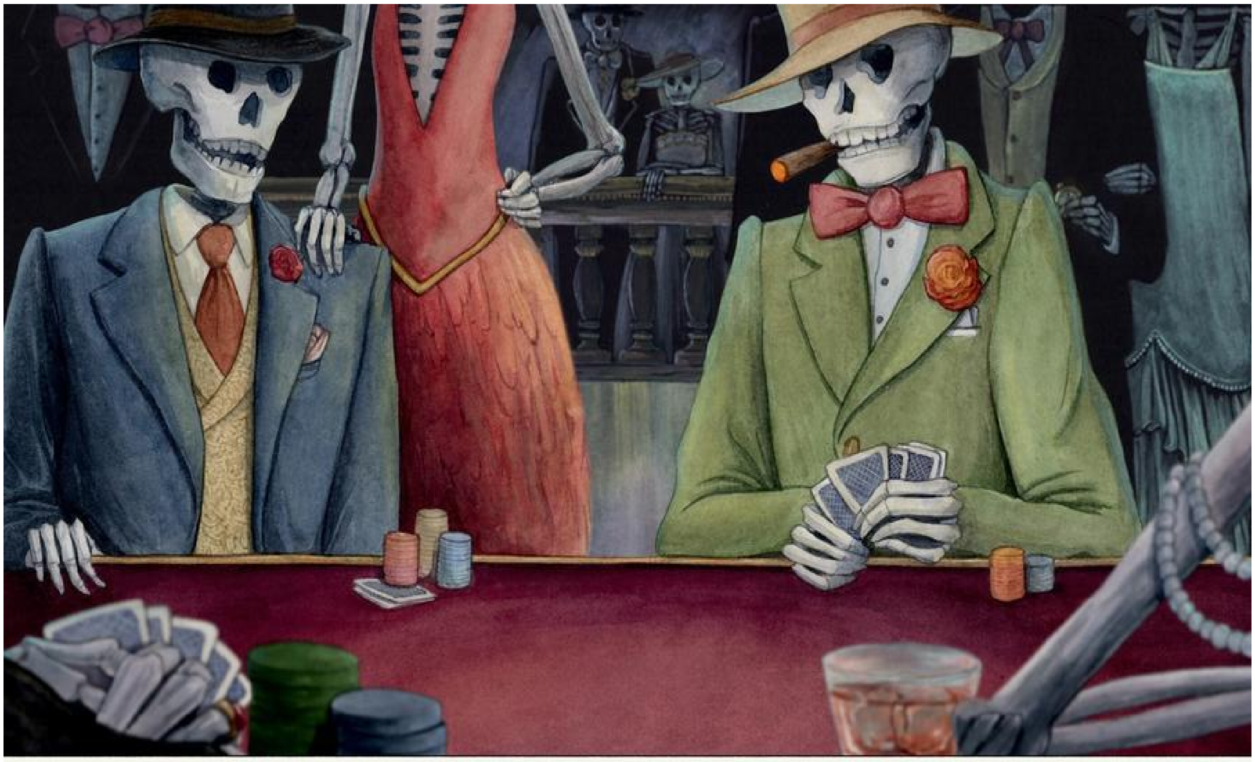
THE MANY BACKGROUNDS DONE as a part of the All Bets Are Off! fight allowed us to explore different art styles and homages, all within the context of depicting the seediness and atmosphere of The Devil's casino. In this scene, you can see a variety of eerie and stylized characters who you might imagine would be patrons in an establishment run by Satan himself. Interestingly, this is the only other place in the game that we chose to depict a character who you could argue is another "devil," although we must confess there is no conscious link between the classy red horned creature seen here and *Cuphead*'s final boss. References for a scene like this went far beyond any specific cartoon and included classic poster design from the era, and the culture of 1930s clubs and "Old Hollywood." Of note: the way these characters fade in and out during the fight calls out the Sunken Ghost Ship from *Super Mario World*, with its blinking Boo enemies.

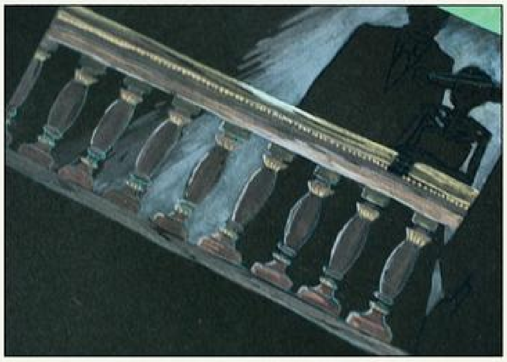




Chips Bettigan

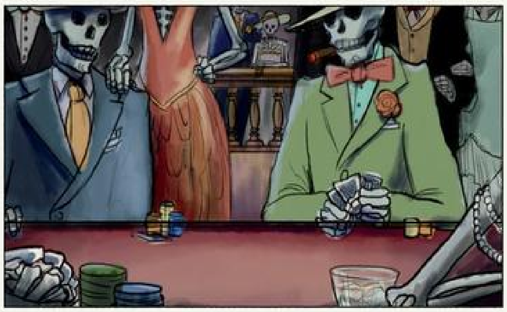
ROWDY, CHARMING, AND NEVER ONE TO ACCEPT the idea that the odds are *stacked* against him, Chips Bettigan is a character that presented a unique art challenge as we worked to ensure that the color grading of all his chips was complementary, while also cohesively meshing with the background. Coincidentally, the palette we ended up with matches *Cuphead*'s three main characters (Cuphead, Mugman, and Ms. Chalice)—not something we planned at the time, given that we hadn't embarked on development of a third character yet when designing this fight. From a design perspective, the way Chips splits up his body and flies across the screen, reassembling at the other end, is a subtle nod to the Yellow Devil from *Mega Man*, whose attack patterns require the same sort of deft jumping and spacing. The character concepts above from animator Hanna Abi-Hanna explore a version of the boss with one of his chips tilted forward, but ultimately these clashed with the attack pattern we had settled upon. Once we saw the version with the cowboy hat, we were smitten, as there is such a rich history of "wild west" motifs in American casinos.





Chips Bettigan Background

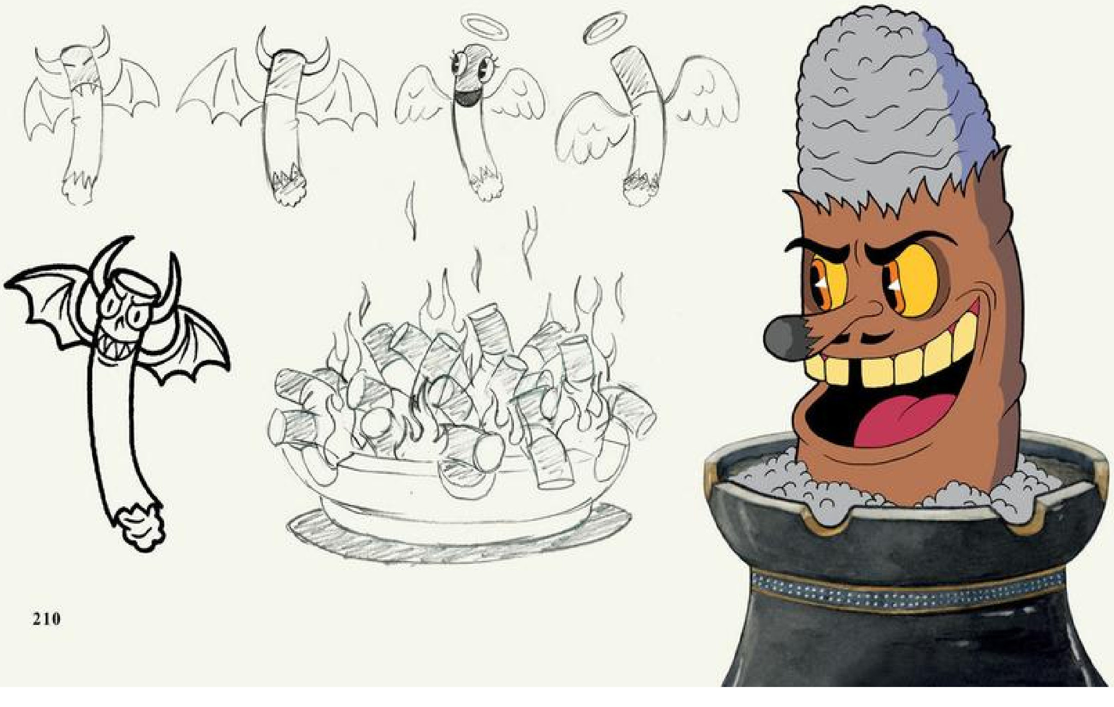
A PERSONAL FAVORITE PAINTING of ours, this scene was inspired by some of the more nightmarish and surreal backgrounds that can be found in a few of Fleischer Studios' *Betty Boop* shorts. For reference material, we dredged up as much early imagery as we could find of people in casinos, across toons, posters, and even early photography. This painting has a deliberately close crop, designed to prevent you from seeing most of the patrons' heads, and creating an eerie, claustrophobic atmosphere as a result. The proportions and appearance of skeletons from Disney and Fleischer toons, especially how they were depicted in backgrounds, were key touchstones here as well. To the left, you can see the mysterious scene from the painting's background, created with gouache paints on black paper. Combined, all the elements of this painting feel to us like the 1930s equivalent of a pulpy horror movie—a genre we love!

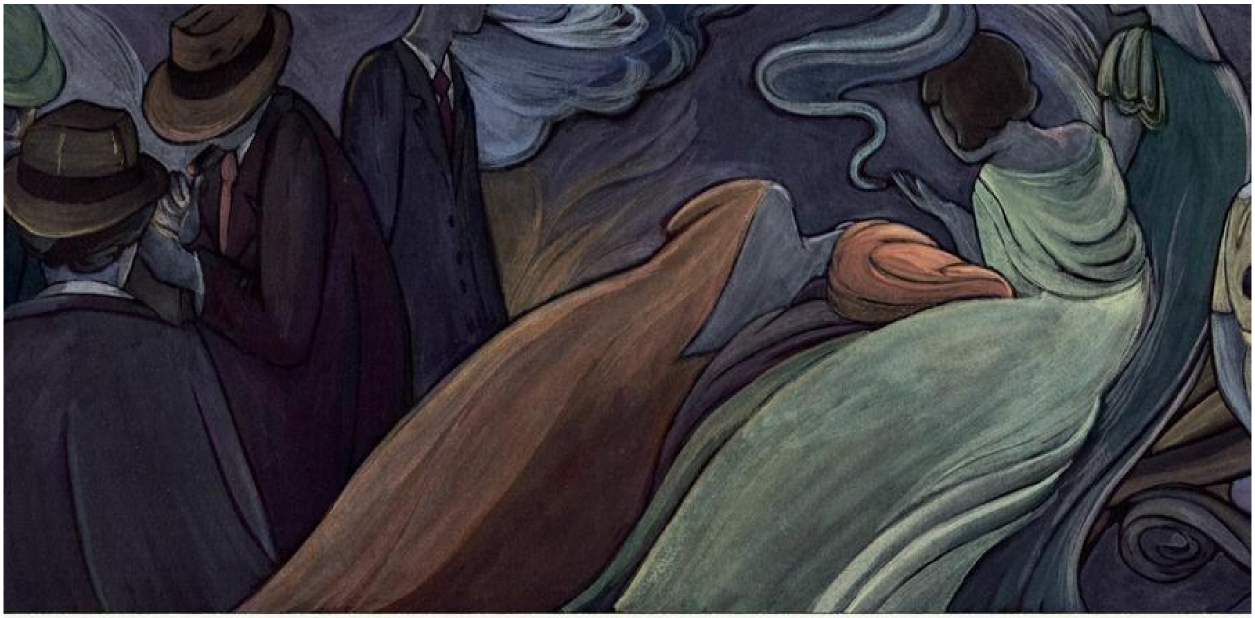


"Hey, short stack! This ain't a place you wanna be hanging 'round."

Mr. Wheezy

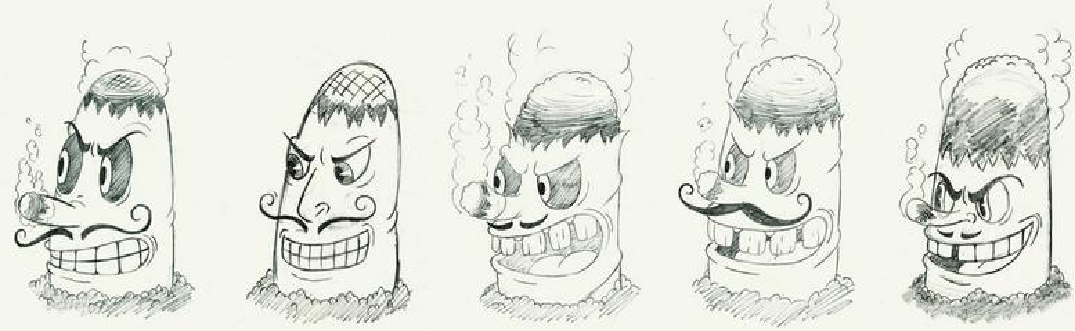
DURING DEVELOPMENT, MR. WHEEZY was the starting point for bringing King Dice himself into these smaller fights, in the form of an intro animation that sees King Dice light Mr. Wheezy up, and a death animation that sees a giant purple foot stomping down from above to crush this underperforming minion. This through-line motif came about by exploring ideas that were initially much farther outside the box, including a concept where Mr. Wheezy violently coughed up smaller cigarettes, splitting in half in the process, as ashes poured out in all directions (talk about macabre 1930s imagery). Notably, the attack pattern for this fight is based directly on an old prototype pattern for the final phase of the battle against Captain Brineybeard, and while it didn't fit that fight, we always kept it in our back pocket as one we knew needed a home. In a game with as many individual attacks, phases, and patterns as *Cuphead*, it was crucial for us to never truly abandon ones that didn't work out in the moment, as there was always the chance of them being useful somewhere else.

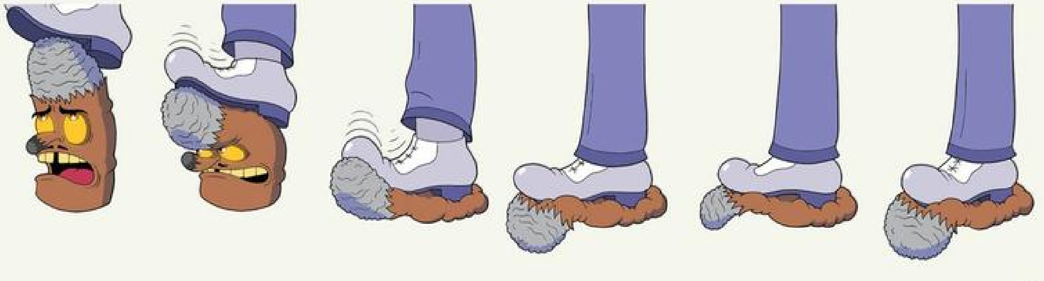




Mr. Wheezy Background

WHILE IT'S NO SECRET THAT *CUPHEAD* is awash with references to 1930s cartoons, the paintings of All Bets Are Off! draw on a much wider variety of artistic touchstones, in service of capturing the kind of surreal and moody atmosphere you see in this Mr. Wheezy background. In particular, the concept of faceless casino patrons swirling together, lost in their vices, takes thematic and tonal inspiration from William Blake's *The Circle of the Lustful: Francesca da Rimini* ("The Whirlwind of Lovers")—a line engraving from Dante's *Divine Comedy*. As with the far background of the Chips Bettigan fight, this is another instance in which painter Caitlin Russell used gouache paints on black paper, which lend themselves to a rich and moody look. Meanwhile, the color scheme here draws from vintage posters for La Cressonnee, a famous early 20th Century absinthe brand. Though not show above, the swirling flames in the foreground of this fight were aesthetically inspired by the flame and smoke effects seen in Hades's realm in Disney's 1934 Silly Symphony *The Goddess of Spring*.

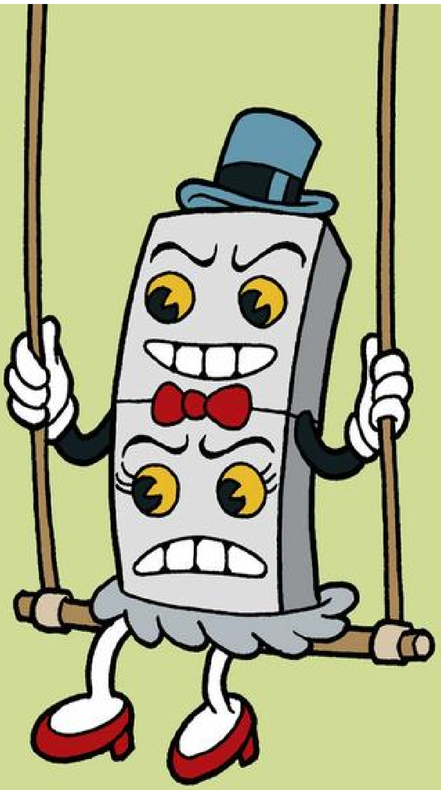


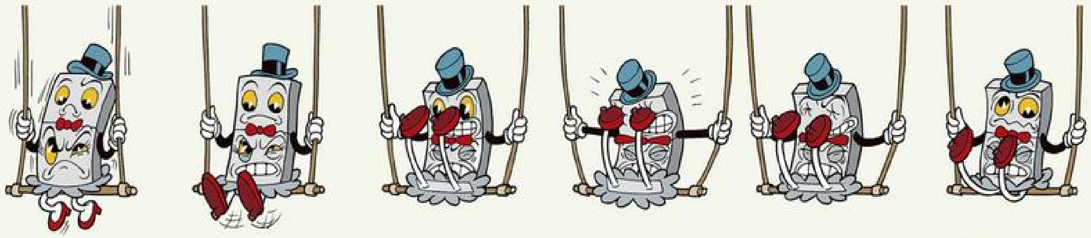


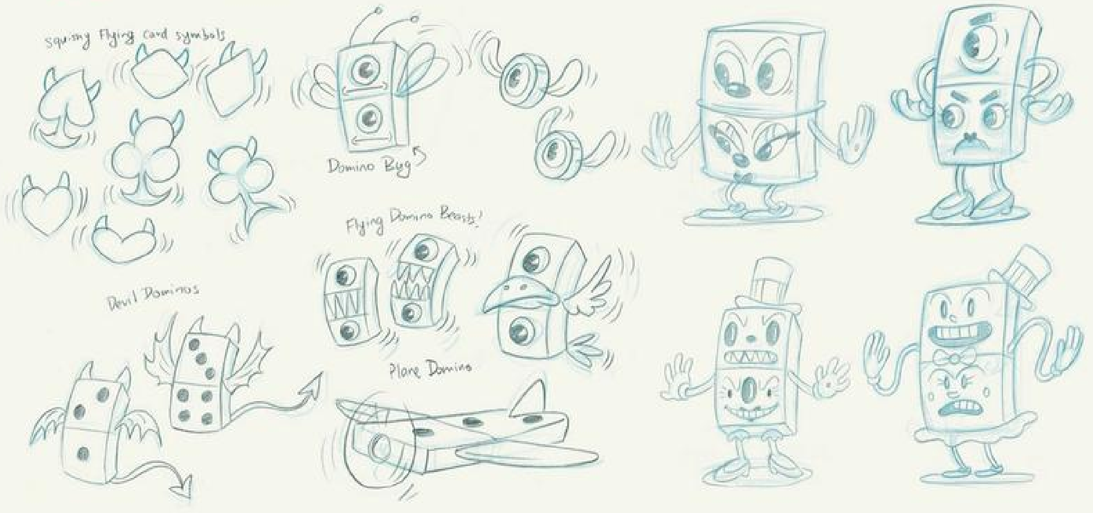
Pip & Dot

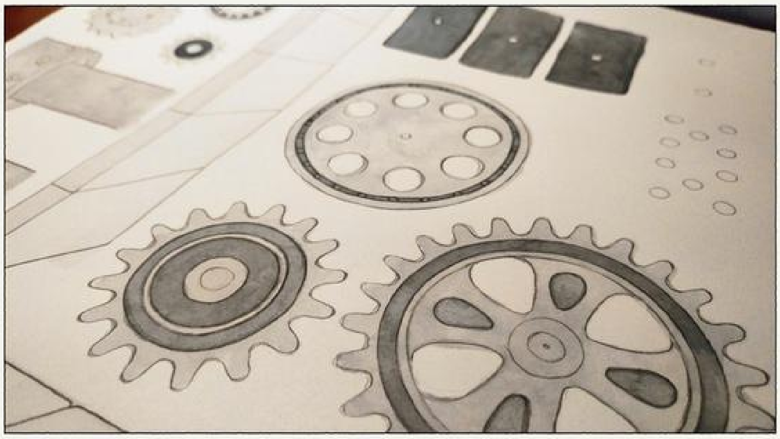
THE HIGH-FLYING TRAPEZE DOMINO husband-and-wife duo, who are literally joined at the hip but split across the center, was an idea from lead designer Jared Moldenhauer that went from initial idea directly into the game. We referenced the happy cat on the swinging apparatus from *Betty Boop's Hallowe'en Party* to get the design era correct and looked to Ub Iwerks's ComiColor cartoons for how to color what would otherwise be a black hat against a black background. Brought to life by animator Tina Nawrocki, we envisioned them as a loving but conflicted pair and were happy to be able to really express their temperamental relationship with their death animation shown below. Ain't that a kick in the head!

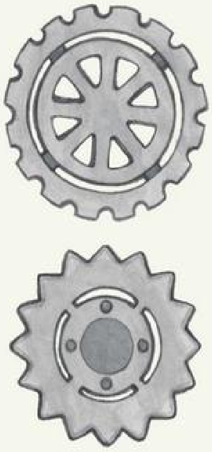
The projectiles that Pip and Dot fire, which most fans think are twenty-sided die, are actually references to the unmarked gray geometrical obstacles from Sega's classic *Space Harrier* games. Another fun note: the two sets of eyes for Pip and Dot represent the two sets of two dots of their domino. Added together, they make the number four that represents their stage on the King Dice game table!

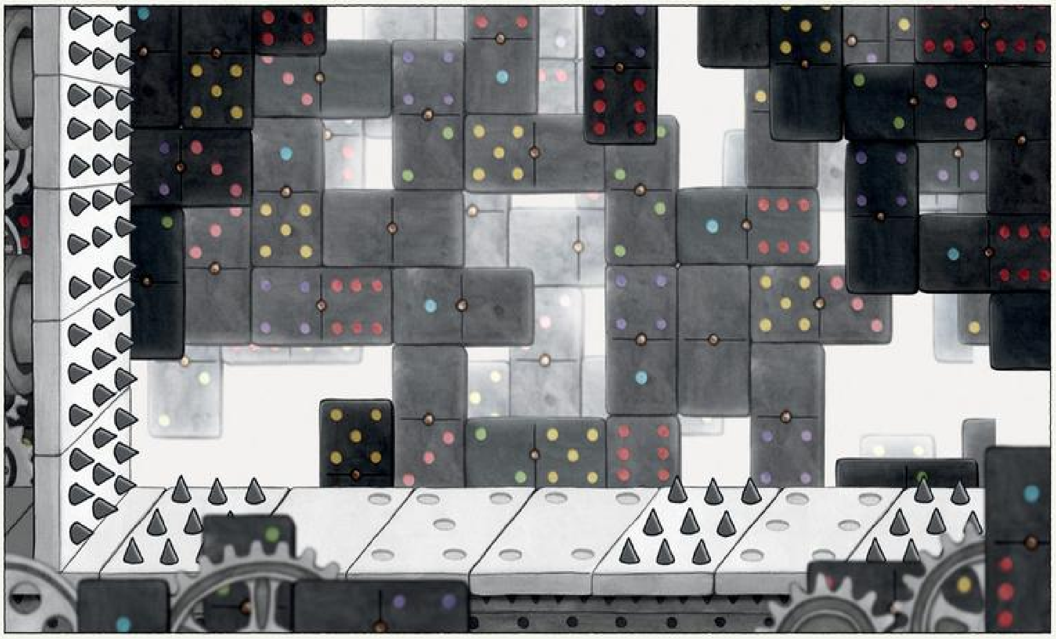










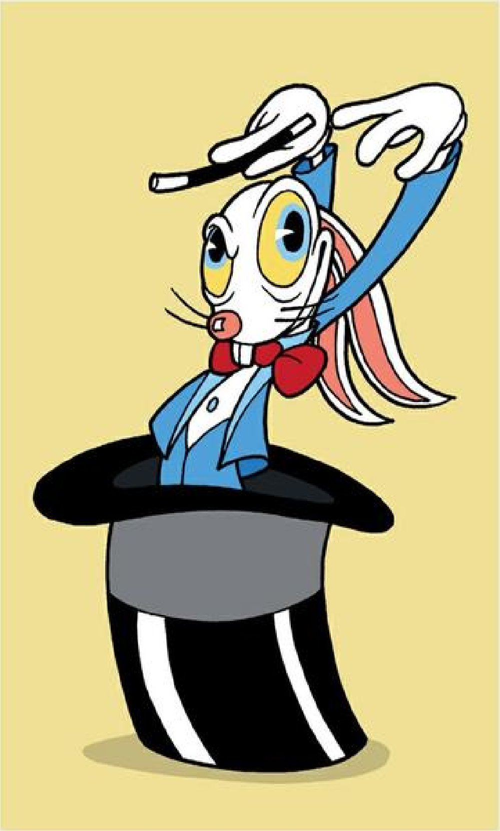


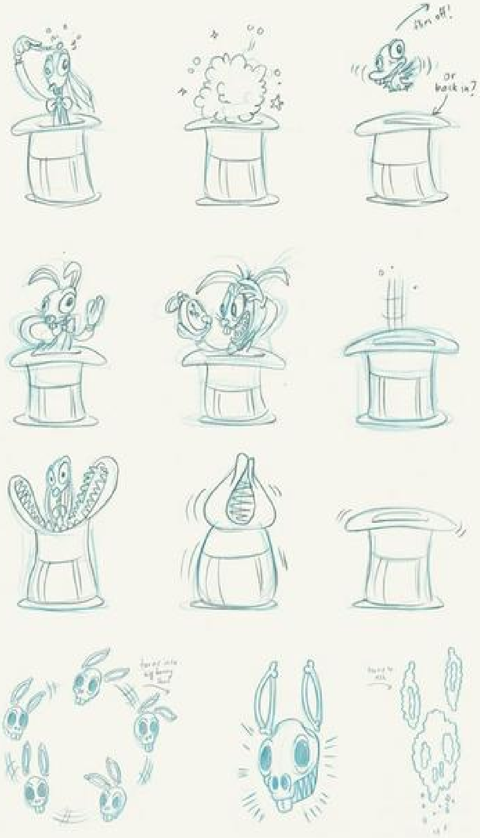
Pip & Dot Background

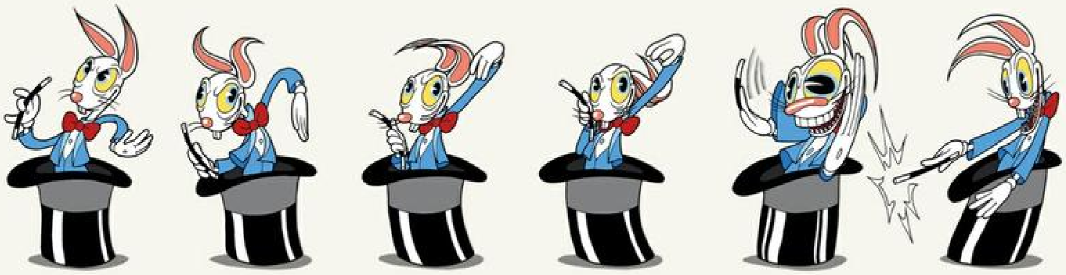
THE ORIGINAL BACKGROUND FOR Pip and Dot started as a much more robotic Rube Goldbergian contraption, and gears like these seen above in pre-separated pieces by background painter Caitlin Russell, would have been chugging away in the background.

The background for Pip and Dot is one of the only stages that doesn't represent the placement of a character in more or less the natural environment that you would imagine they belong to. The concept for this stage started very oddly, as it originally had a circular grinder trying to chew up the heroes on the left side and the entire background was a twisted mess of pumping pistons, spinning gears, and moving plates. We wanted it to give the feeling of being behind the scenes of the evil casino, to have it look like Cuphead was facing off against Pip and Dot from inside the machinations of one of the machines.

But as we tried to make the background more domino themed to match the boss, we went through multiple iterations that led us away from that original concept. First, we traversed through references to *Tetris*, with descending and interconnecting blocks in the background being part of the machines, to eventually landing on a strange domino world abstraction, with the colored dots as riff on the blocks from the obscure Taito puzzle game for the NES called *Palamedes*.



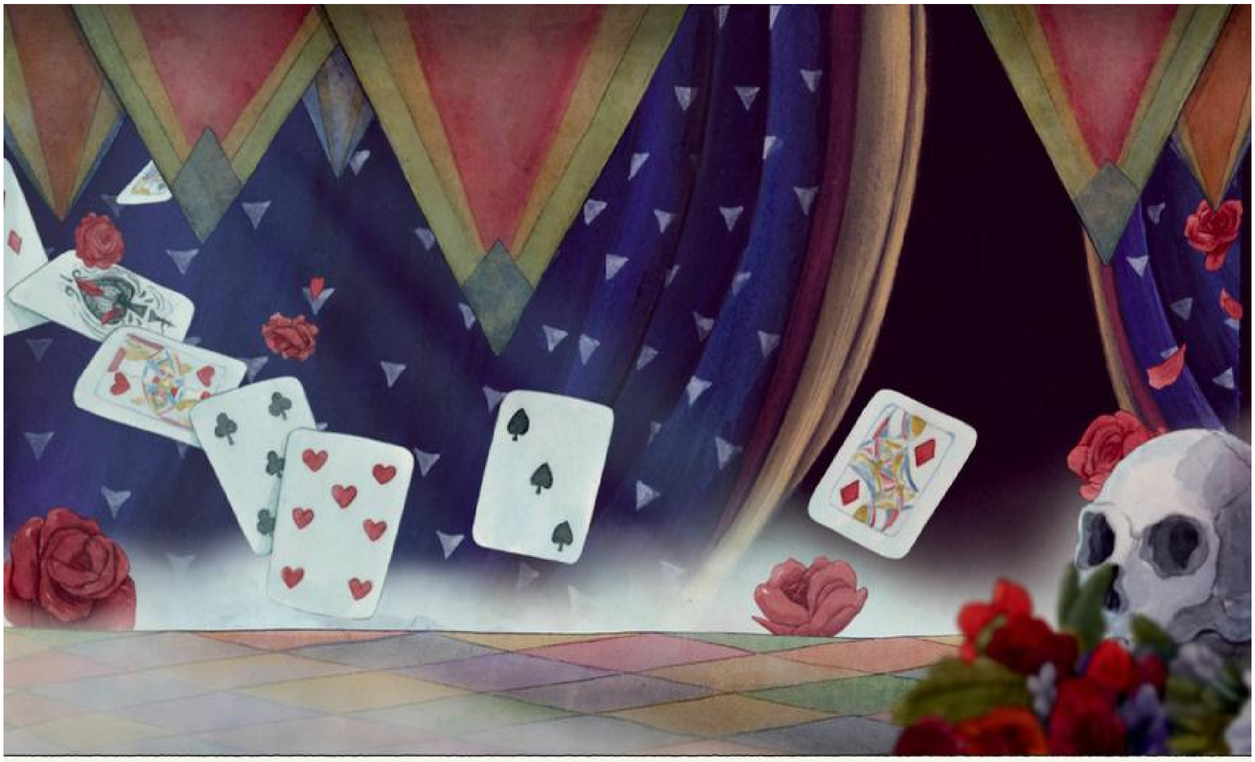




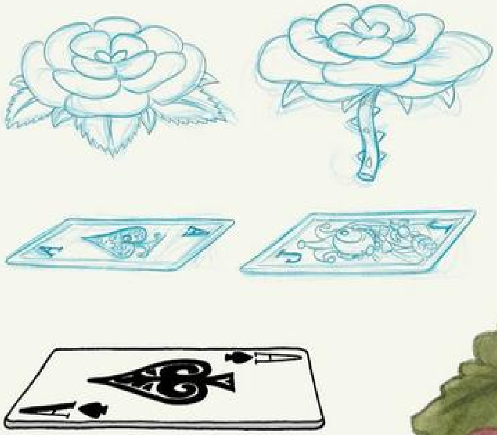
Hopus Pocus

NORMALLY IT'S A FUN SURPRISE when a magician pulls a rabbit out of a hat, but Hopus Pocus isn't your average cuddly magician's prop. Another in a long line of 1930s-style visual gags based on a literal interpretation of their name, this loopy magician rabbit was an opportunity for animator Tina Nawrocki to push the smearing animation technique, seen in his magic casting animation above, as far as she could. A disparate mix of influences, from the stoic comic-book hero *Mandrake the Magician* to the cuddly rabbit of 1939's *Prest-O Change-O*, Hopus Pocus probably owes the most to the manic energy of the early *Woody Woodpecker* cartoons.

Hopus Pocus is one of the few King Dice minibosses that has an animation showing King Dice himself interacting with the minion as his hand reaches down into the hat and pulls the rabbit up during the intro. Wherever it was appropriate, we tried to show instances of King Dice lording over his troupe, as it reinforced his personality during bouts with other characters.



"... and PRESTO!! The cup has completely disappeared."

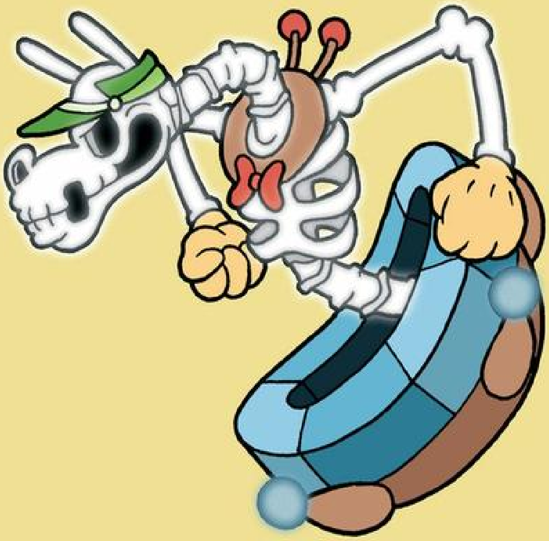


Hopus Pocus Background

HOPUS POCUS'S BACKGROUND ENDED UP being a pastiche of mystical and ominous iconography that we pulled from 1930s ads for magic shows, and even pinball machines based on magicians of the era. Playing cards, bouquets of flowers, and eerie mist are all standard magician props background painter Caitlin Russell used to fill out the scene.

One detail that unfortunately didn't make it into the final game? Originally, we were going to have the number on the playing card platform match the number on King Dice's board that Hopus Pocus was associated with. Due to having to shuffle the boss order multiple times during development for pacing and difficulty balancing, we ended up not being able to include that connection. Regardless, we think Hopus Pocus is a real ace anyway.

Phear Lap

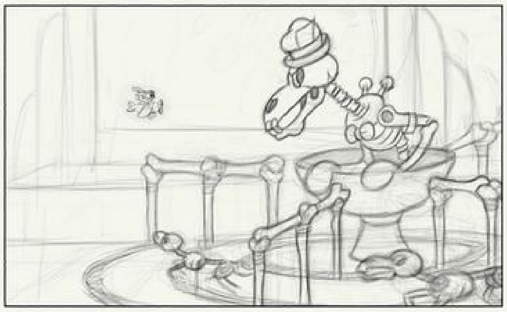


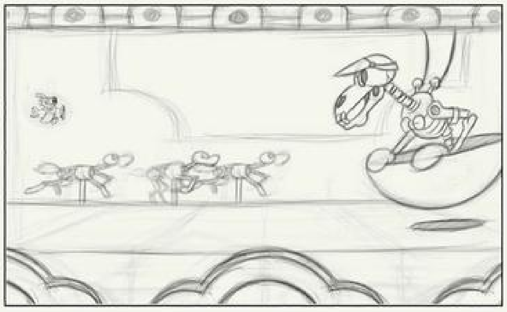
CHUGGING THROUGH THE SKY on his betting table of doom, the equine nightmare bookie tosses presents of peril your way as the hellbound specters watch on. Named after the famous horse-racing champion Phar Lap (pleasantly dubbed "the Red Terror"), Phear Lap's horse racing encounter is a blend of the H.C. Evans 1933 mechanical horse-racing machine with some inspiration from the Sega Genesis game *Dynamite Headdy*.

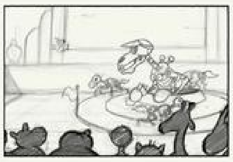
From the mechanical horse racing machines, we took the slotted horse lines, with individually animated jockeys riding their steeds feverishly around the track. From *Dynamite Headdy*'s Baby Face boss, we took inspiration in dividing the player's attention, forcing them to dodge the slow-moving projectiles in the sky while purposely obstructing their view. Watching for the vertically spiraling horse mounted reapers among all the chaos, all while view-obstructing thickets of trees flash by, is no simple task, and Phear Lap has his bets placed against you!

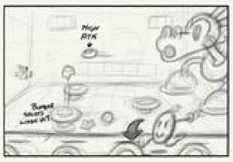
Phear Lap Background

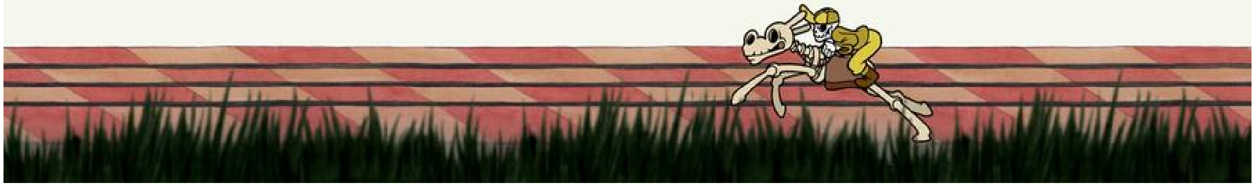
WHEN PHEAR LAP ANIMATOR Joseph Coleman was developing visual concept ideas for this boss fight, the nature of the mechanical horse race being fully integrated into the background meant that the character and the environment ended up being developed all at once rather than sequentially like the other Inkwell Hell boss fight backgrounds. A lot of inspiration for the spinning setup of this background comes from a *Dynamite Headdy* boss called Spinderalla, wherein the entire stage appears to rotate through the background on a circular path. Collaborating with painter Caitlin Russell, we researched photographs of vintage house porches, mansion parties, and horse racing bleachers to accurately capture the structures and decorations of the era.

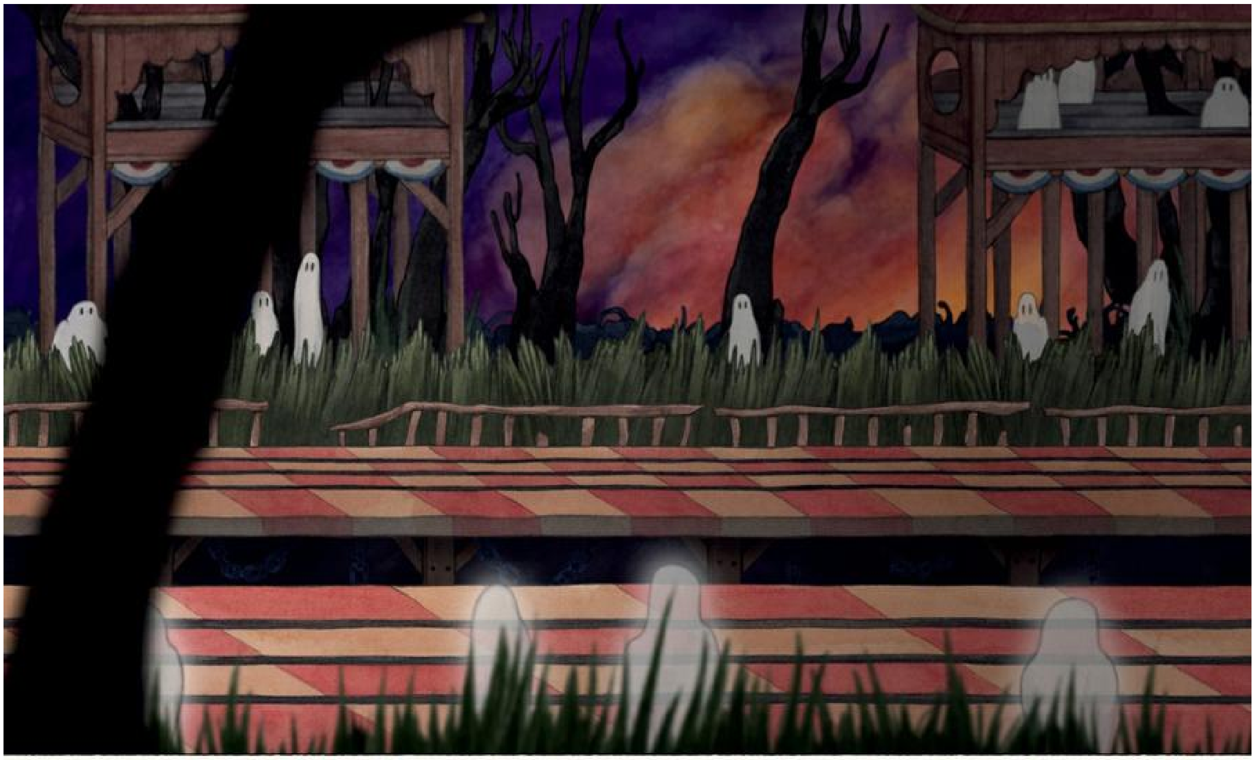


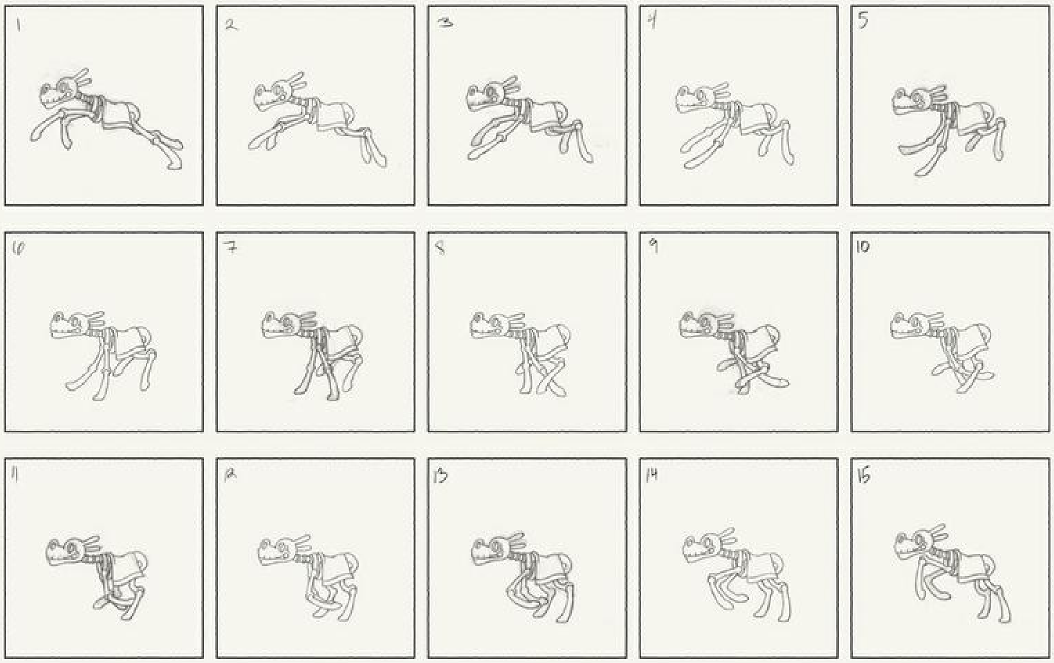








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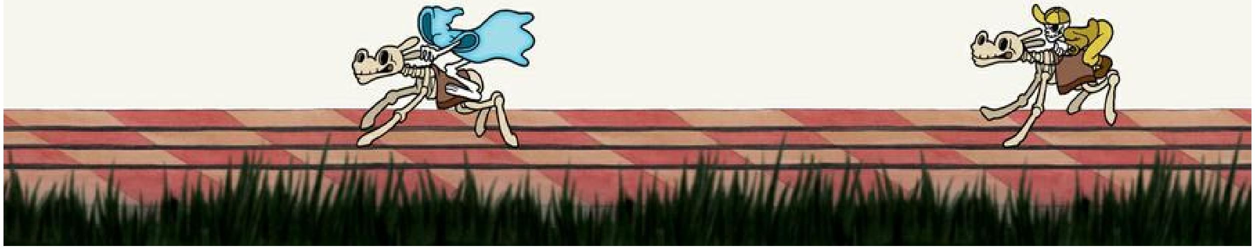
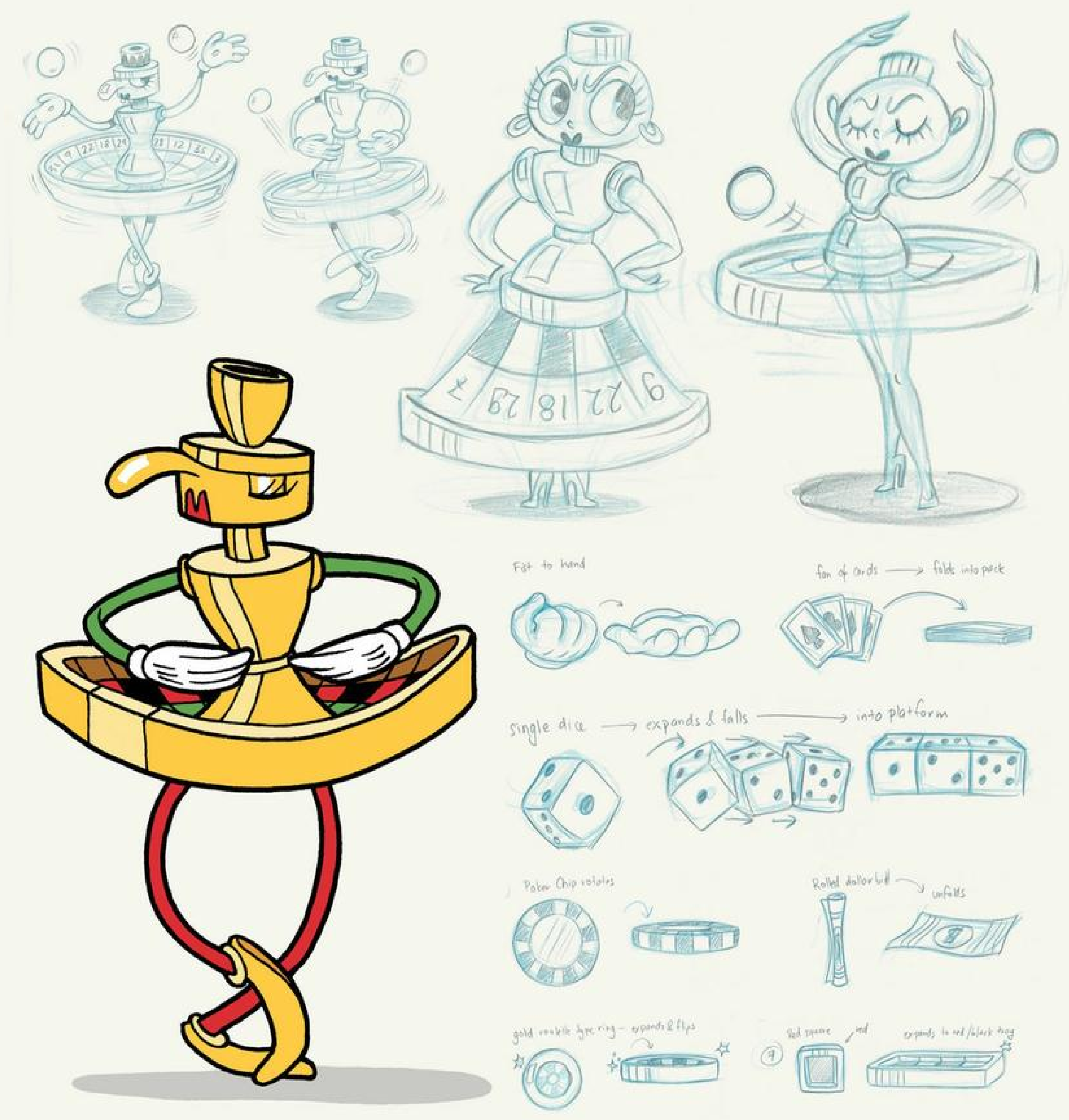
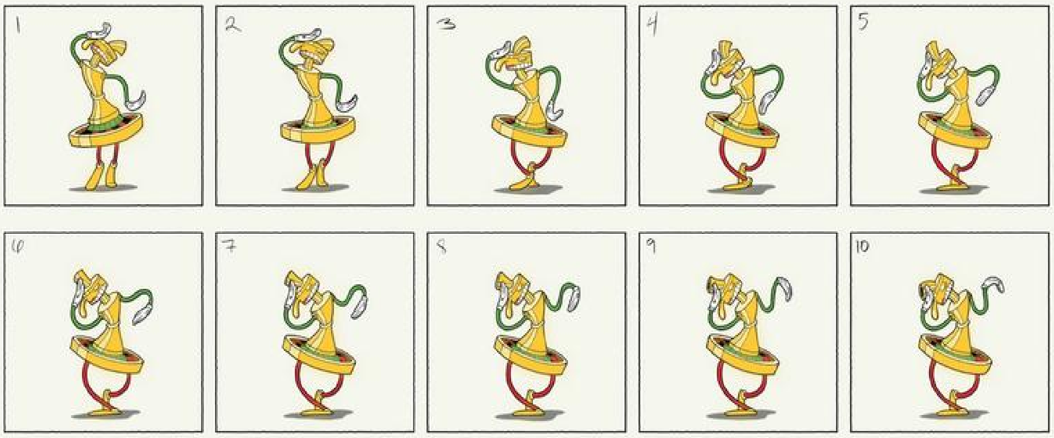


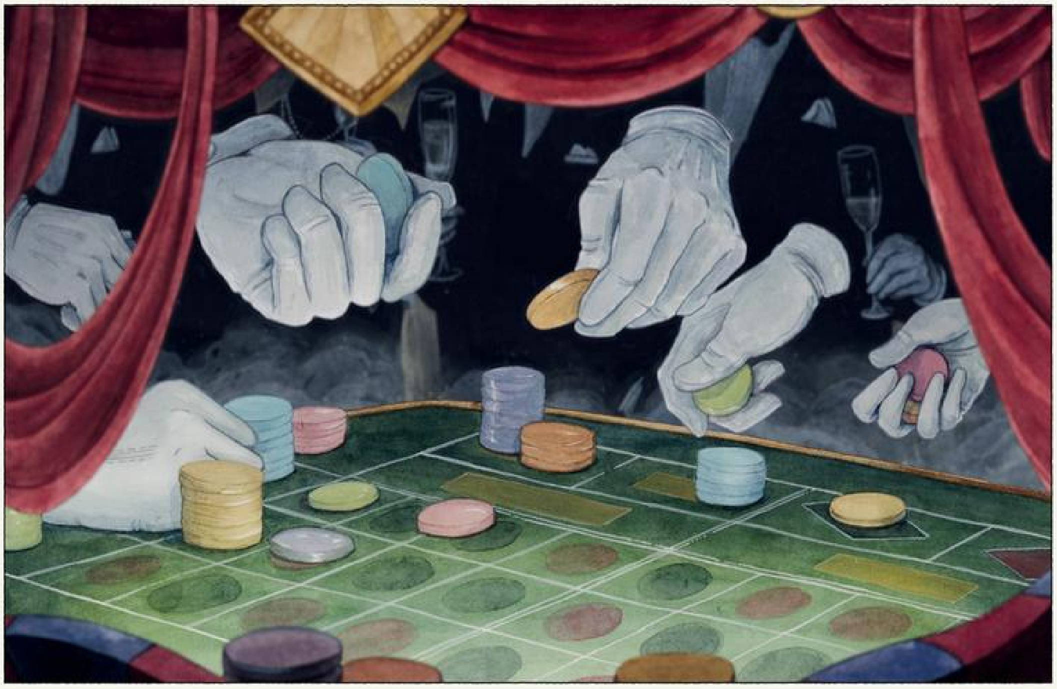

Fist to hand
fan of cards → folds into pack
single dice → expands & falls → into platform
Poker Chip rotates
Rolled dollar bill → unfolds
gold roulette type ring – expands & flips
Red square
red
expands to red/black tray

Pirouletta

WHILE WE OFTEN HAD the general idea of what a character would be during its gameplay design phase, Pirouletta came about differently. We had a simple platforming boss pattern that we quite liked—an homage to the Taito Genesis game *Wardner*—but had previously found no official place for it in the game. While tasking our artists with coming up with general casino-themed characters, animator Tina Nawrocki conceptualized a roulette wheel anthropomorphized into a ballerina, inspired by the ballet lessons she was taking at the time. Upon seeing the concept, we knew Pirouletta would work perfectly as the character for the parry-challenge platforming boss we had created before but not used.

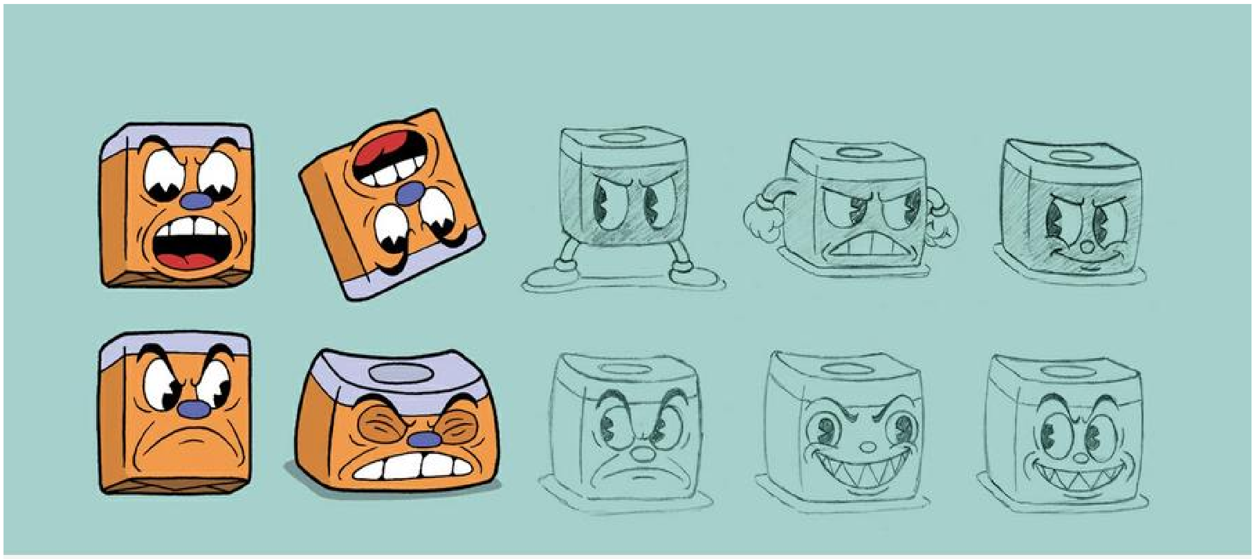
Graceful in all movements, including the ten-frame defeat animation shown opposite, Nawrocki based the animations of Pirouletta's spins and traversal on real ballet form and foot placement.

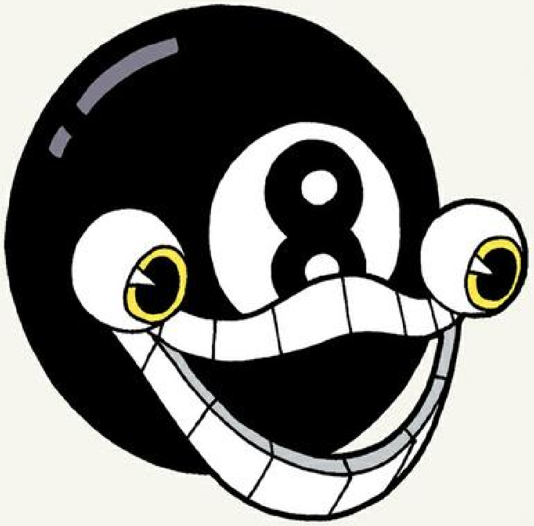


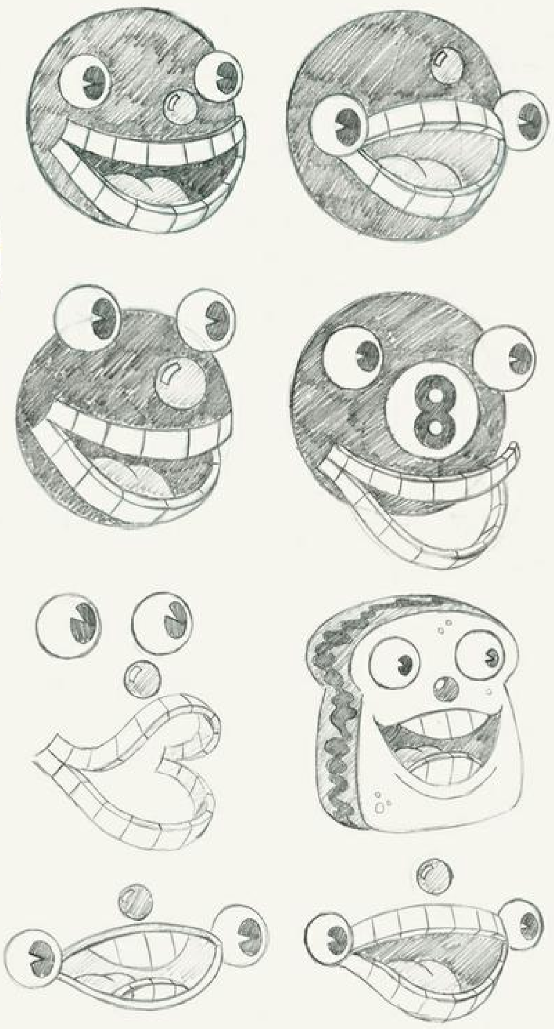


Pirouletta Background

WITH THE DISEMBODIED HANDS placing roulette bets, this is one of the few places in the game that betrays the pure cartoon world of the Inkwell Isles. By placing the realistic hands in the background of this scene, background painter Caitlin Russell attempts to create a surrealistic detachment from the standard *Cuphead* world, making the whole scene feel disconnected and uncomfortable. The perspective places the player on the board of a roulette game mid-play, with what would have to be giant beings looming over, watching the dance of the battle. A common thread through a number of the King Dice backgrounds, size is used as a metaphorical, rather than literal, indication of power.



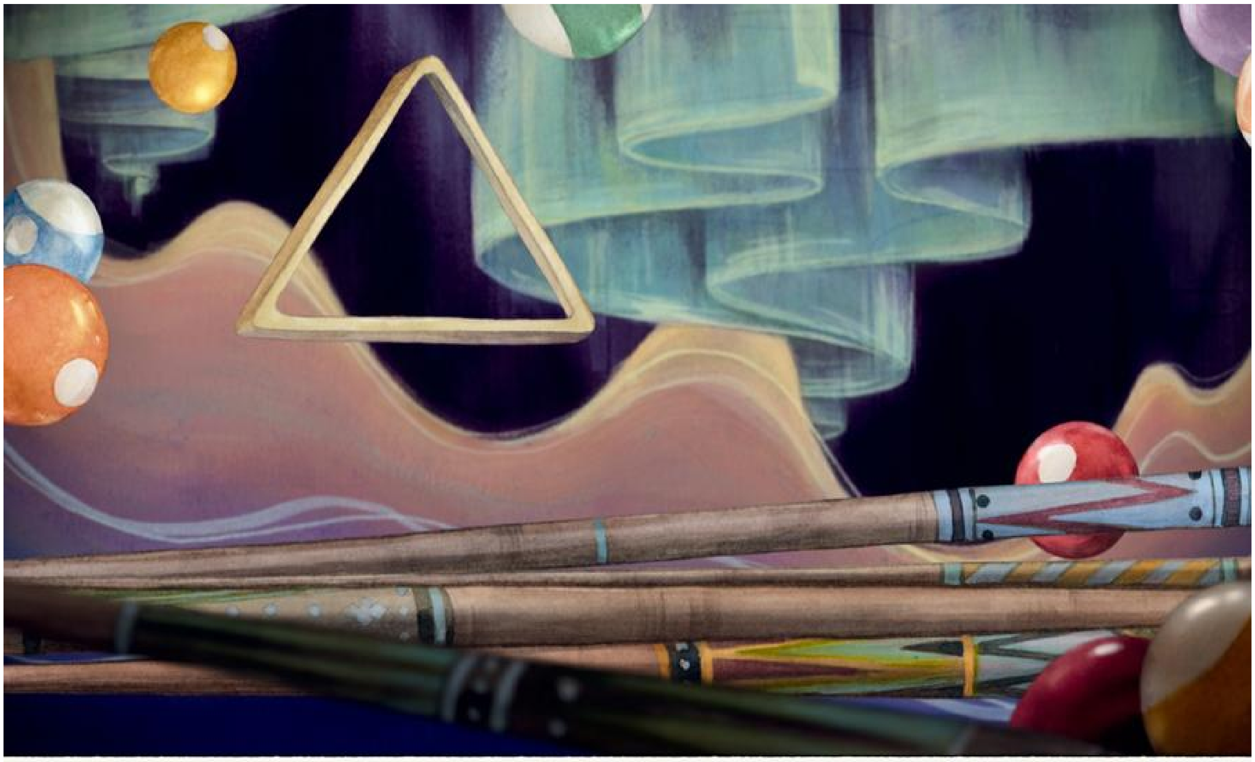


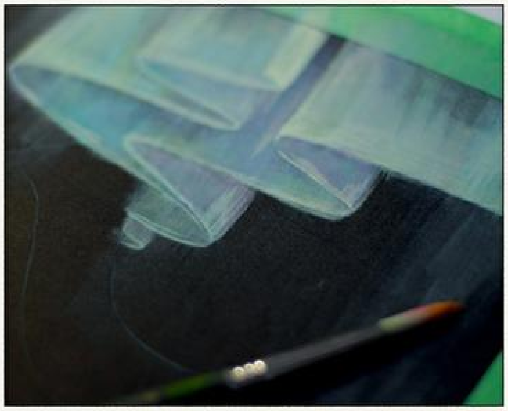


Mangosteen

THIS BIZARRE GOOGLY-EYED EIGHT BALL is our love letter to game developer Treasure's pseudomascot Melon Bread. Seen first in *Gunstar Heroes* and again in their follow-ups *Alien Soldier* and *Sin & Punishment*, Melon Bread was always depicted in their games as detached eyeballs floating around a spherical head with a Cheshire grin, and we wanted to pay homage to the masters of the run-and-gun genre with our own strangely tropical fruit-named oddity.

Knowing this design would be truly offbeat, animator Jake Clark started exploring with concepts like the literal watermelon sandwich seen on the right. Once Clark drew the eight-ball design, we knew we had the perfect link to fit the vice-themed minions of King Dice. Finally, we placed a portal to the astral plane inside Mangosteen's mouth as a cheeky nod to the mythology of what one might find if they broke open a magic eight-ball toy.





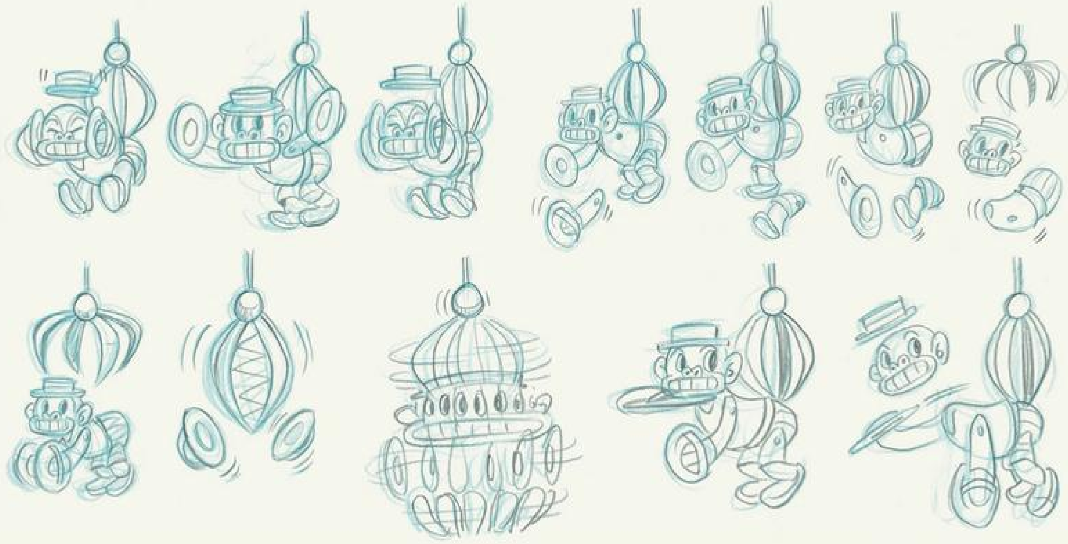
Mangosteen Background

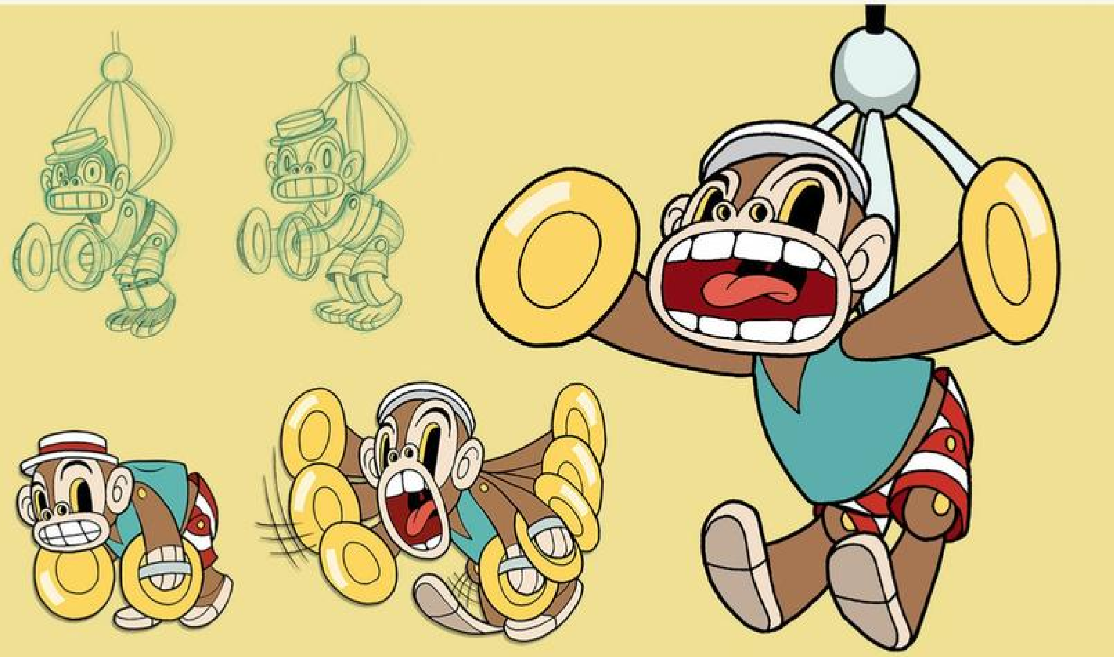
FOR A CREATURE AS ABSTRACT as Mangosteen, he needed a pocket world to match. Background painter Caitlin Russell tried to construct an ominous and disorienting landscape with no actual ground. Spiraling unmarked pool balls float in the air while a snake nest of pool cues crisscross to form the only structures on which our heroes can find purchase.

As a link to Mangosteen's connection to the Inkwell Isle' ethereal astral plane, we softened the lines and saturated the colors on this background to heighten the otherworldliness. In many of the fantasy scenes in Disney's cartoons, the artists would blend bright, colorful imagery with the energetic and odd. For our scene, Russell depicted northern lights rippling around everyday objects like ribbons (an impossibility for real northern lights), further amplifying the unnerving feeling of this sky-scape.

Mr. Chimes

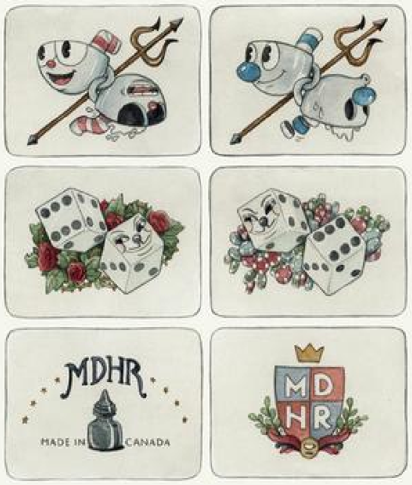
WITH HIS HOLLOW EYES and unrelenting determination, Mr. Chimes is the kind of fun fair prize you'd be rushing to rid yourself of. In "All Bets Are Off," though, the only way to get this monkey off your back is to play a high-stakes game of memory (inspired by the card matching game in Nintendo's *Super Mario Bros. 3)*, inside the crane game he calls home. We wanted to use this fight as a way to pay homage to the "hoist crane" games found throughout the penny arcades and casinos of the era. These progenitors of the modern "claw game" would often reward kids with wooden and tin toys more complex than the stuffed animals available today—hence the notable joints on animator Tina Nawrocki's sketches and artwork below. Fun fact: Mr. Chimes is also a reference to George the gorilla from Midway's classic 1986 arcade hit *Rampage.*

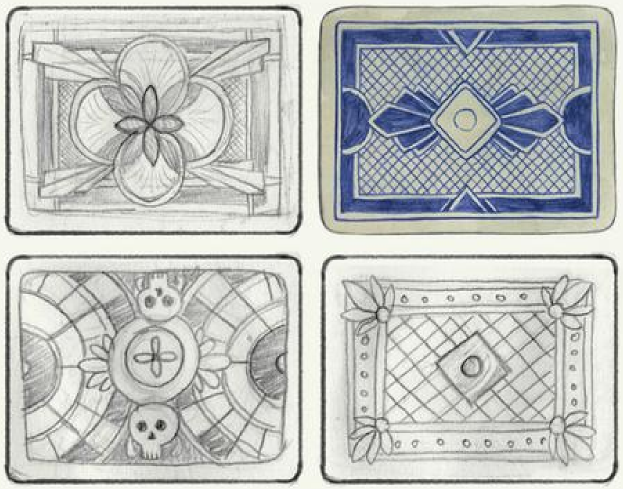


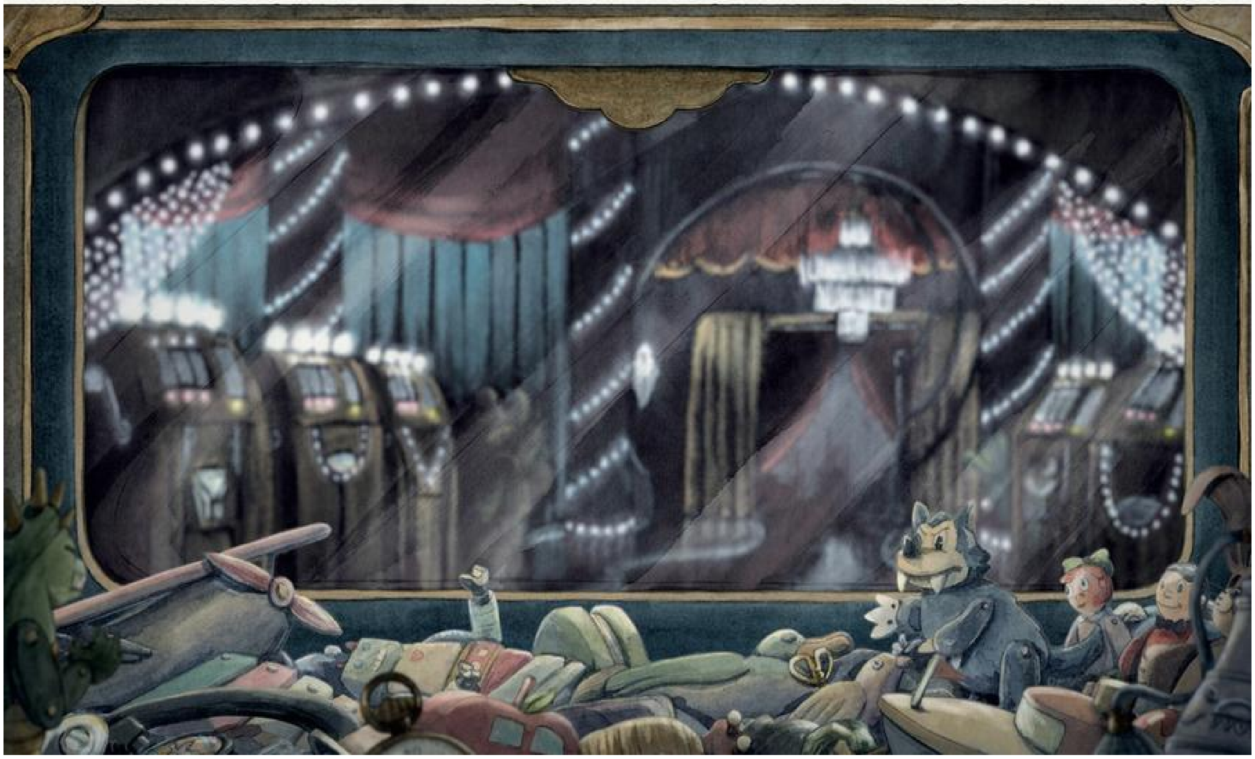


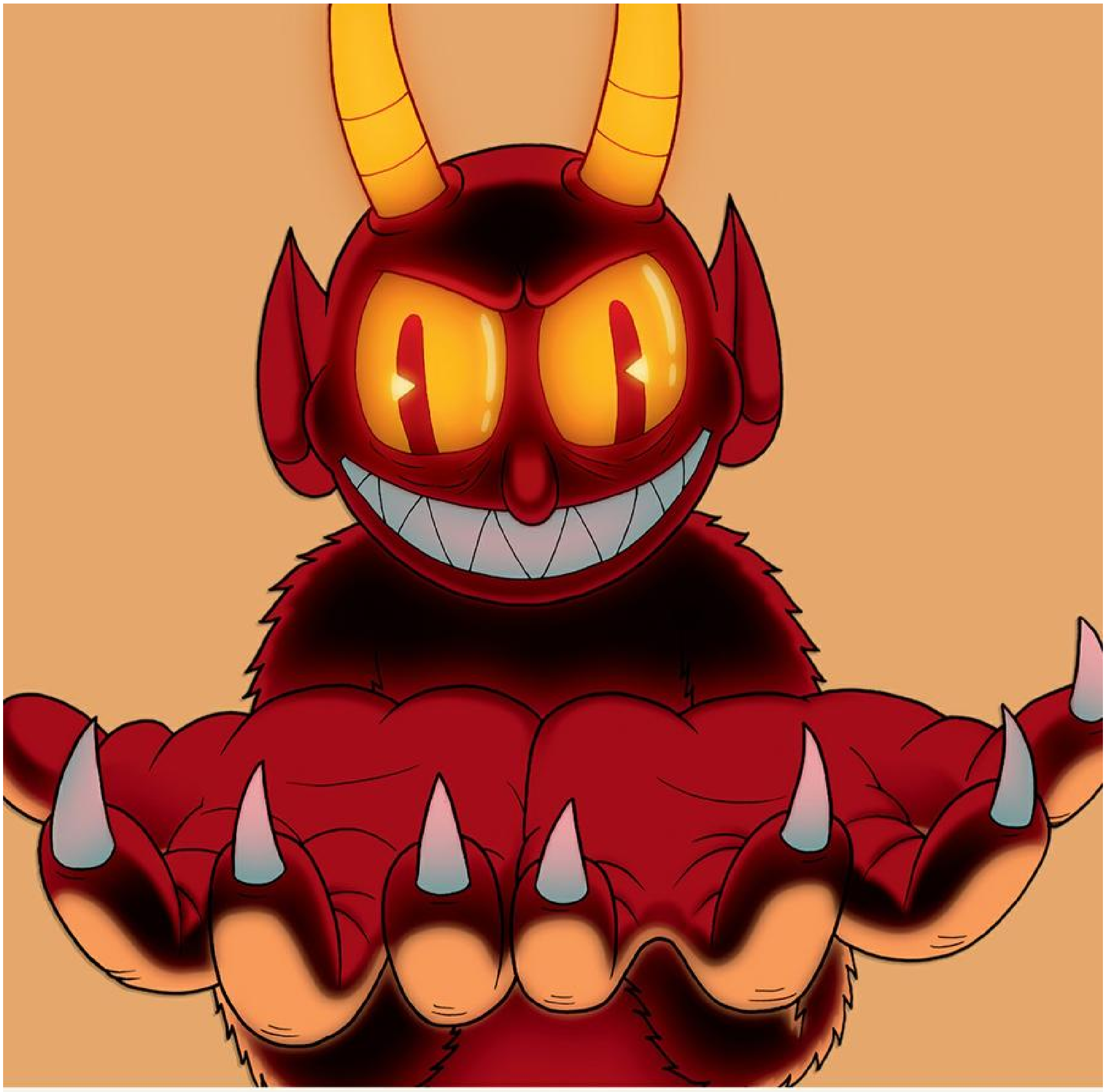
Mr. Chimes Background

KNOWING THAT WE WOULD BE implementing a memory game with cards into this fight, painter Caitlin Russell took the opportunity to research the minute details of art deco playing cards in circulation during the 30s. Notably, this fight marks the last in-fight art reference to the studio, with two card backs bearing bespoke versions of "MDHR." And since no claw game is complete without prizes, we took the opportunity to sneak in as many nods as possible in the toys up for grabs. There are too many to list them all, but here are just a few! To complement Mr. Chimes, there are dinosaur and wolf toys representing Lizzie and Ralph from *Rampage*. The girl and boy to the right of the screen are nods to the central characters of the Ub Iwerks–produced ComiColor cartoon *Balloon Land* (1935). The steering wheel near the foreground is a callout to Sega's 1986 racing classic *OutRun*.



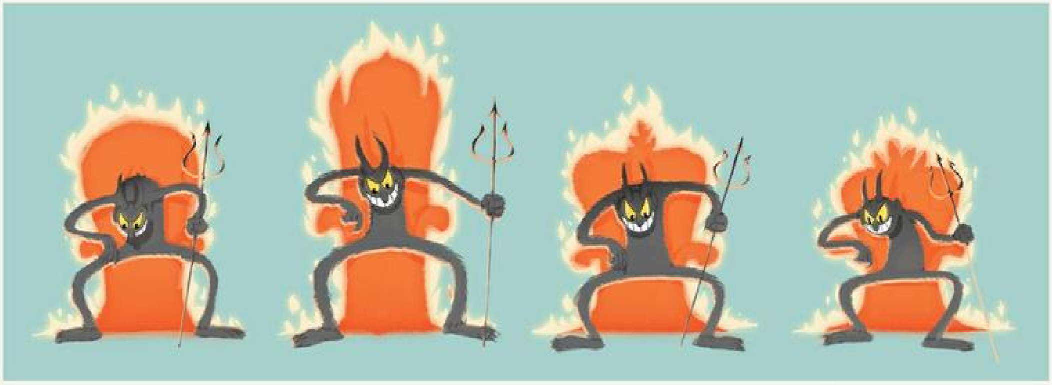


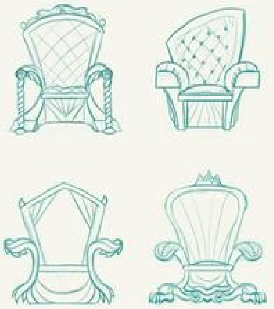


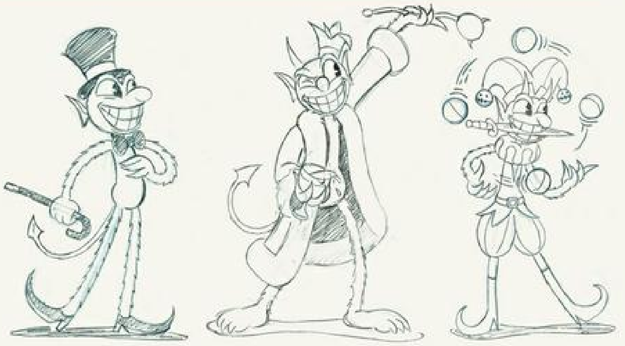


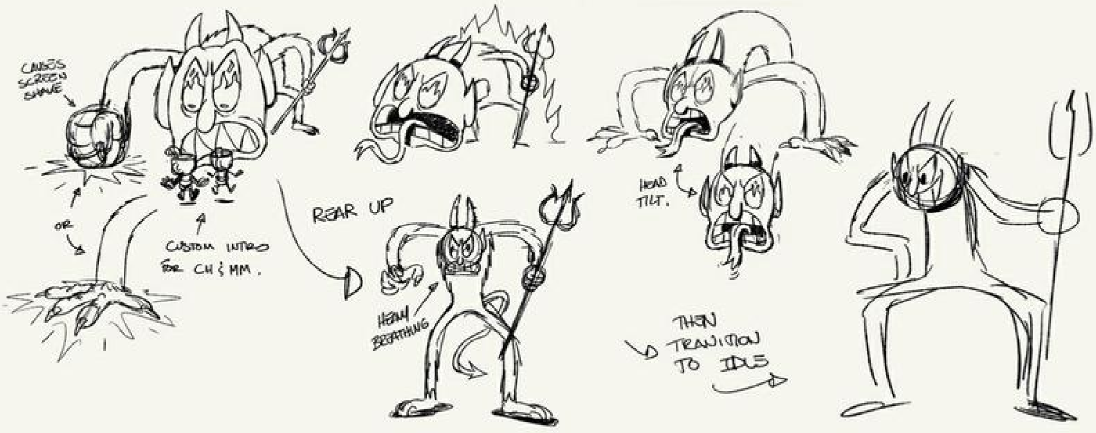
The Devil
in
“ONE HELL OF A TIME”

THE JOURNEY HAS BEEN LONG for our heroes, but it's time for Cuphead and Mugman to come face to face with the ultimate evil, the big bad, old scratch himself, The Devil! Powerful beyond words and full of malevolent mischief, the ruler of Inkwell Hell and the proprietor of all things sinful, The Devil isn't going to just let his debtors default on their payments. He's a businessman after all, and stealing souls is his business. Trident in hand, the furry fiend seeks to rule the Inkwell Isles with his dastardly contracts, but our ace adventurers are looking to beat The Devil at his own game.



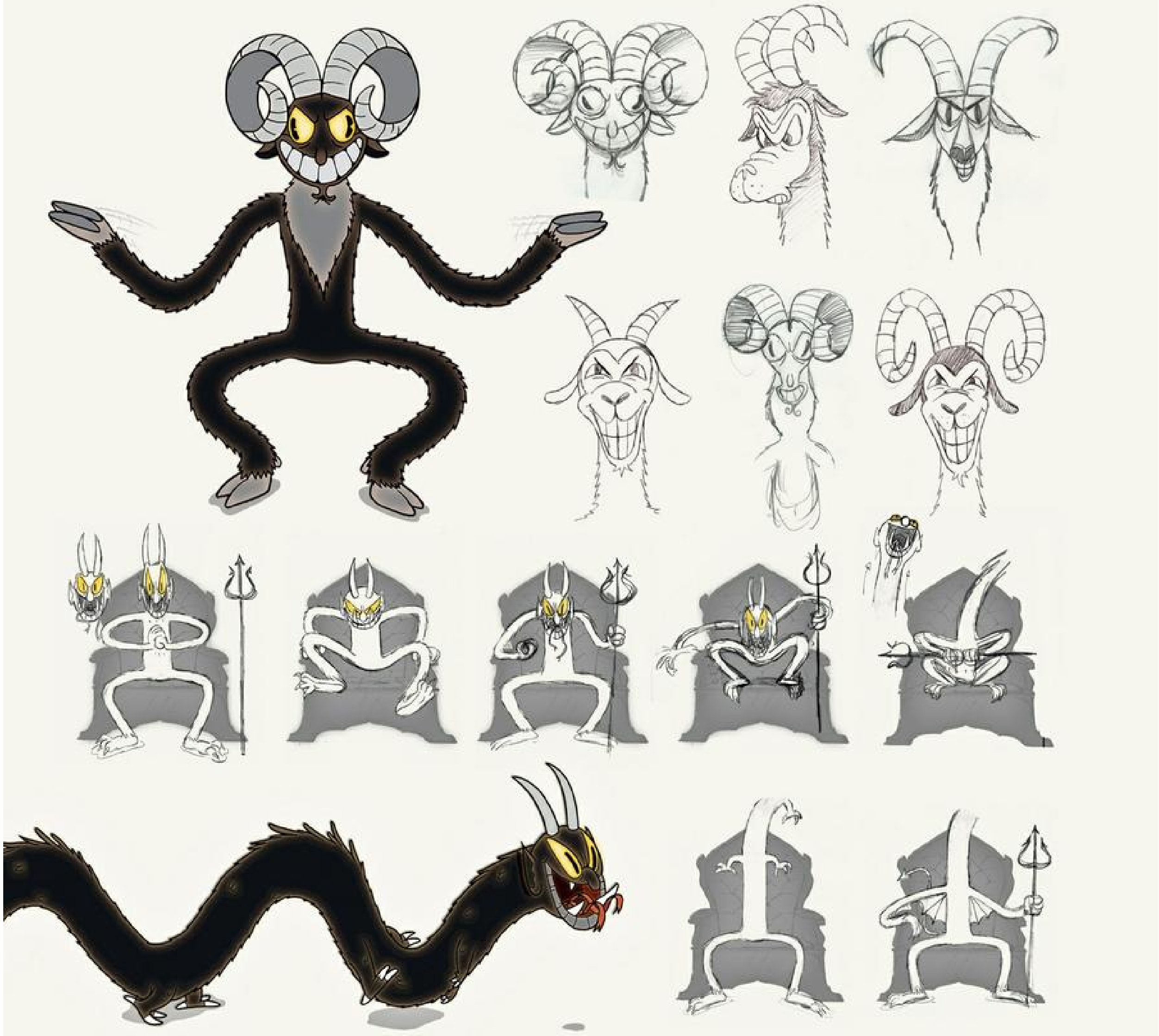






From our earliest concepts of the porcelain protagonists, we always knew that they'd be pitted against The Devil. Many of the cartoons from the 1930s would have trickery as a key theme and video games would often have you face all powerful gods at their climax, so it was a foregone conclusion that we'd put our stamp on the classic tale of good versus evil, with evil not playing fair.

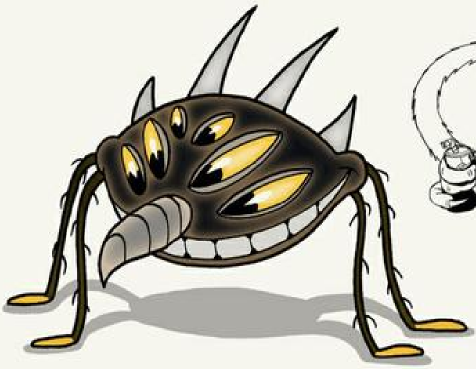
Coming up with the visual design for The Devil was as tricky as the fine print on one of his contracts. We tried a number of variations, from a king-like ruler of the depths to a Puckish jester of the void to an arrogant showman (the personality of which was carried on to his second in command, King Dice). But the more accoutrements we would throw on the Devil, the further he would depart from his primal, iconic form. Looking to impish depictions in cartoons like the Betty Boop shorts *Hell's Bells* (1929) and *Red Hot Mamma* (1934), as well as a more refined and detailed humanistic rendering like the one in Disney's *China Shop* (1934), we amalgamated our inspirations and trended towards the more stripped down, pie-eyed, almost cute rendering of Beelzebub.

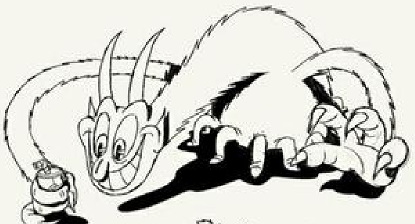


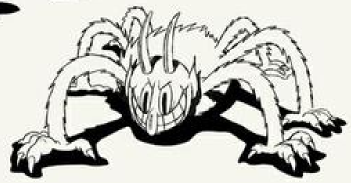
While the rest of the *Cuphead* bosses were developed out of order and concurrently, we saved the gameplay design of The Devil for last. We wanted this final battle to be the absolute culmination of everything we learned while producing the game. For the first phase, we wanted to pay homage to the final fight against Lucifer in the Capcom arcade classic *Ghouls 'n Ghosts*. Seated upon his giant throne, The Devil would take the guise of different historical metaphors for devils from different cultures (the goat, the serpent, and the insect), each pertaining to a different challenging attack pattern.

While conceptualizing these different forms for The Devil, we explored how far into animalistic territory we should go. In the goat depictions above, we initially represented The Devil in a way that was much closer to cartoon representations of an actual goat, but we felt that we lost The Devil's character. In the final designs, we strove to keep key visual elements—the eyes, the face shape, the smile—through each morph to maintain consistency.

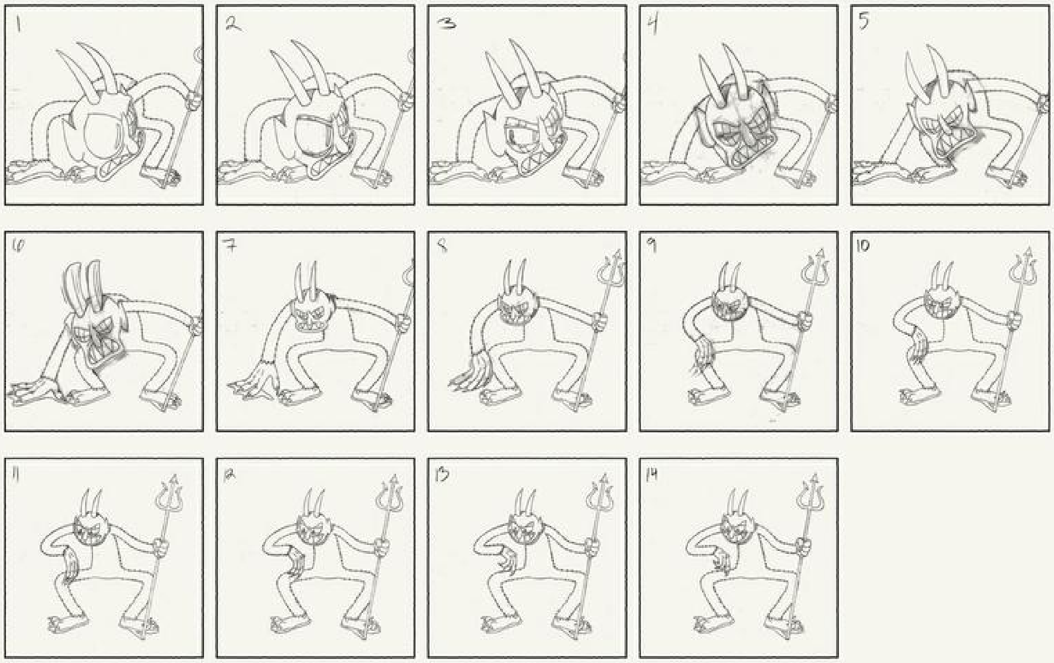
With the demonic imps, seen at right, we wanted to create a visual connection to The Devil while still making them distinct enough to quickly pick out in the fight. Early concepts were looking a little too cute, so we stretched out the limbs and made them more era-appropriately sinister.

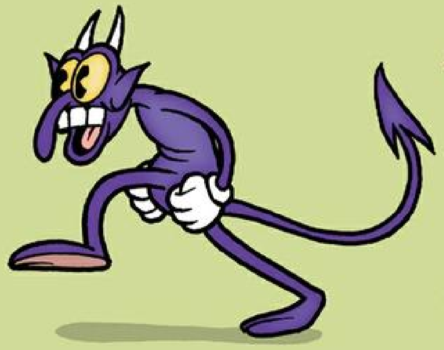


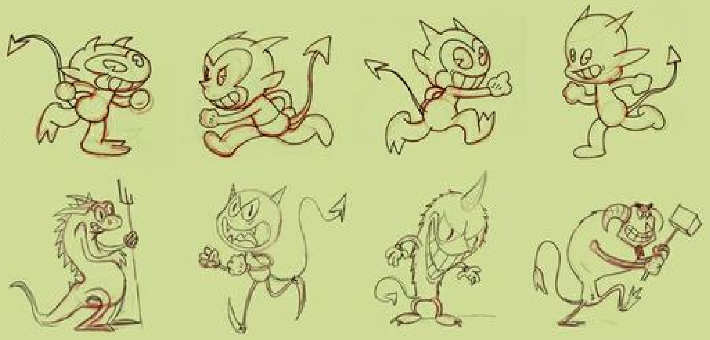




The animation below depicts the fourteen-frame intro for The Devil. In the final, the image in his eye shows a cup being sliced into tiny pieces only to reform as his pupil. We originally planned to have multiple different symbolic animations inside The Devil's eye, but that idea was eventually cut for production reasons.



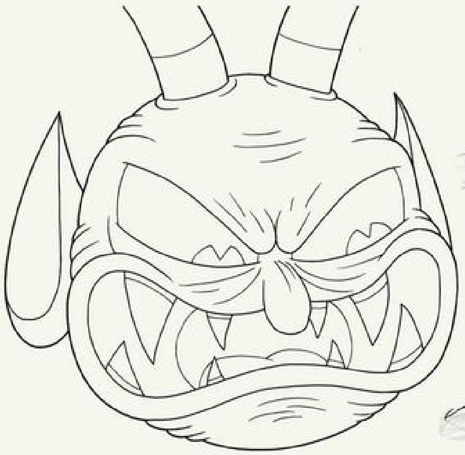


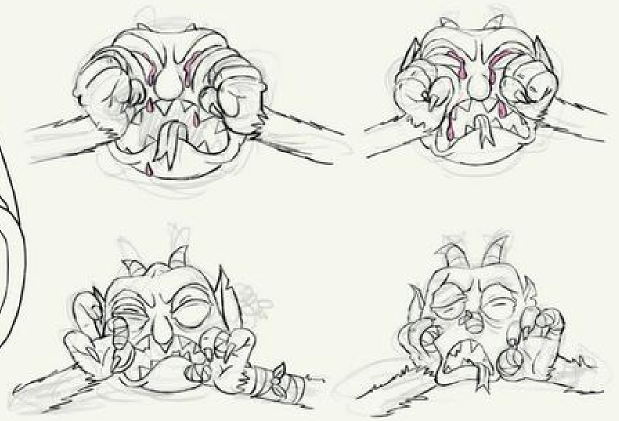


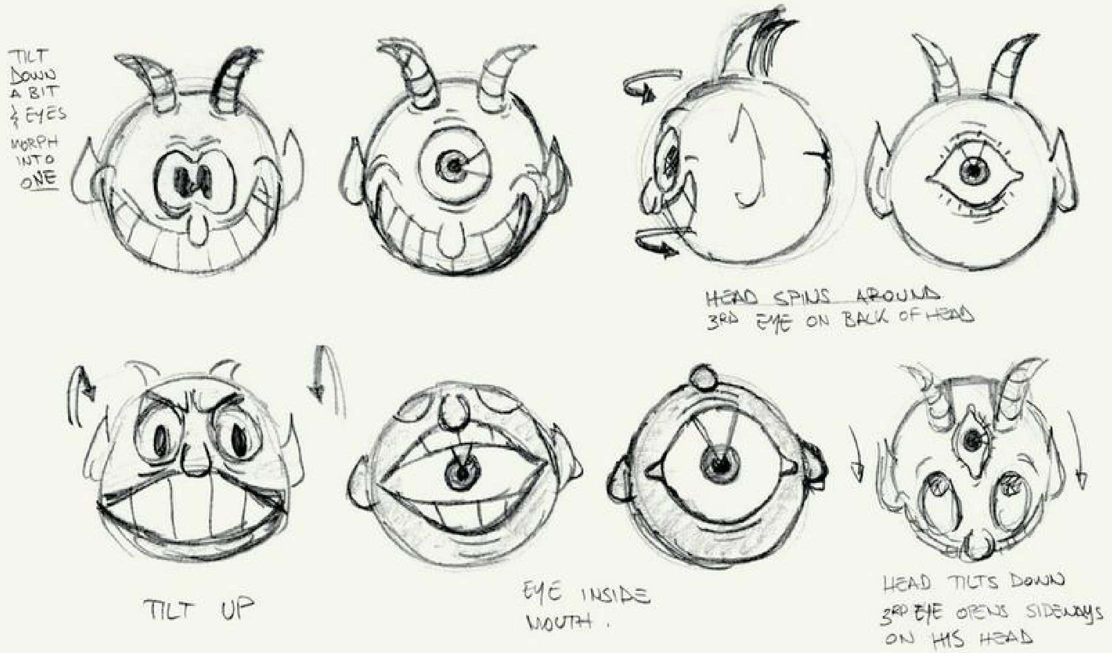
As the final piece of art we produced for the game, we wanted the last phase of The Devil to be the capstone visual piece both for the game and for our animators' skills. We chose to focus on the face of The Devil to give our artists the ultimate opportunity to convey emotion and feeling. We used Disney's 1941 *Fantasia* masterpiece *Night on Bald Mountain* as a reference for the level of animation we were hoping to achieve. While using a film from the 1940s may feel incongruous for a game that endeavors to rigorously mimic rubber-hose animation from the 1930s, we felt that this final battle was us metaphorically moving into the next stage of our evolution as a team, and we wanted the art and animation to symbolize that progression as well.

We started gameplay prototypes with the goal of having attacks coming from all sides of the screen. We wanted flying demons descending from the top of the screen while larger demons spat skulls from the left and right and The Devil himself sourcing all kinds of problems from the center of the screen. Early concept exploration focused how we could source all of The Devil's attacks from the center and we theorized a number of different eye-based morphs as seen in the pencil sketches by The Devil's lead animator, Hanna Abi-Hanna, below.

Once the general concepts for the different attacks were completed, we set about planning how we were going to accomplish the

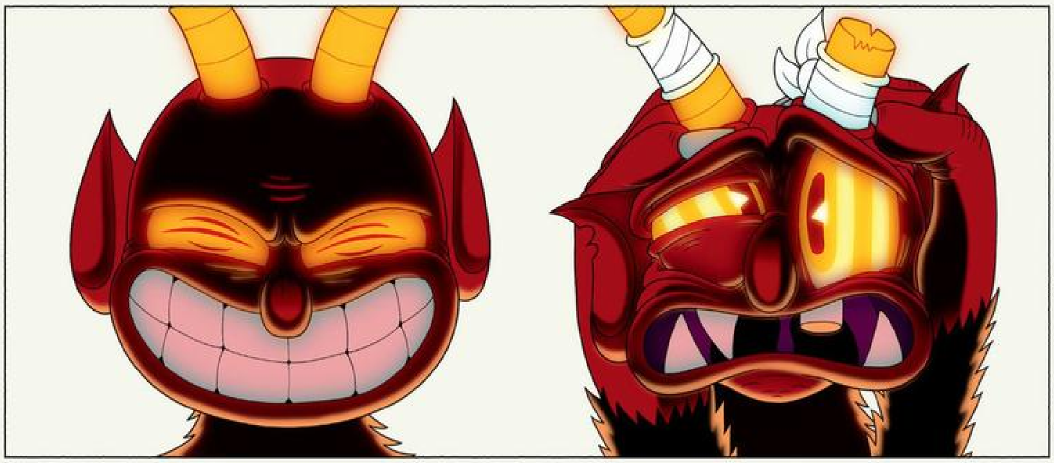




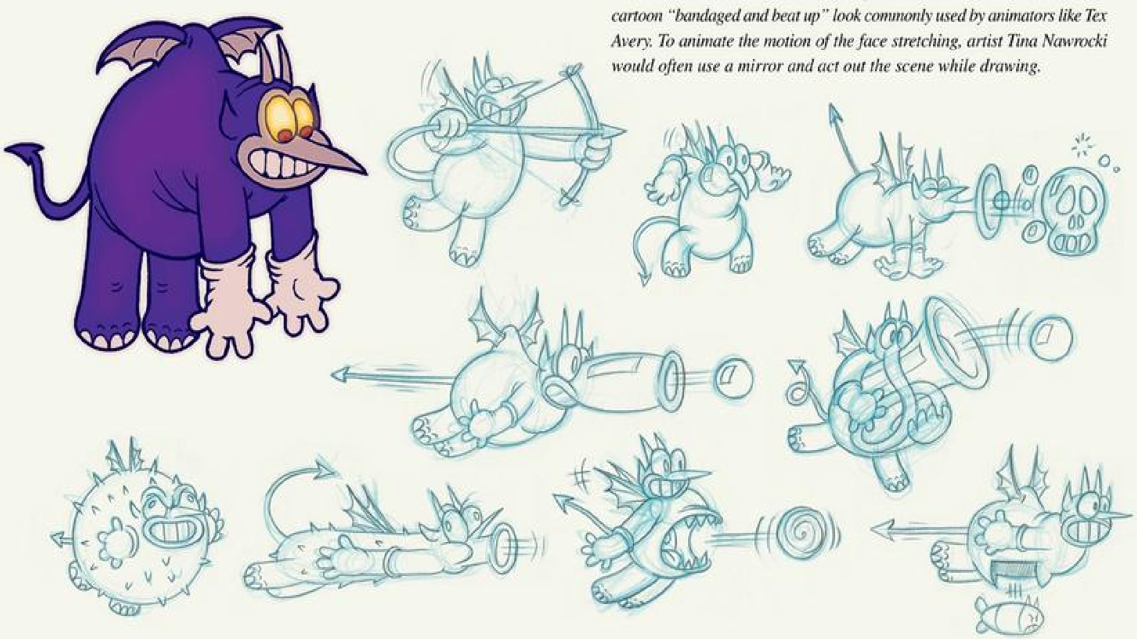

TILT DOWN A BIT & EYES MORPH INTO ONE
HEAD SPINS AROUND 3RD EYE ON BACK OF HEAD
TILT UP
EYE INSIDE MOUTH.
HEAD TILTS DOWN 3RD EYE OPENS SIDEWAYS ON HIS HEAD

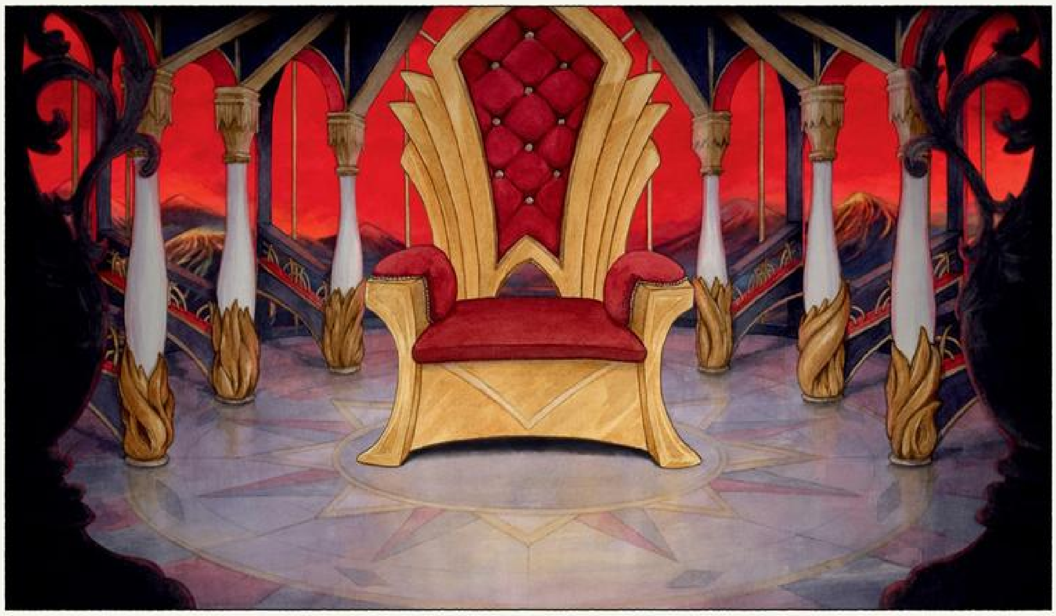
detailed shading on The Devil's face. Like all the other animations in the game, the first pass was a rough pencil to figure out the spacing and timing. Then the rough pencils were refined into a clean pencil pass, known as a "tie down," that smoothed out the jitters of the sketchy lines of the initial timing frames. Those clean pencils were given to inker Maja Moldenhauer to hand ink, adding weight and dimension to the art. Those inked animation frames were then given back to Abi-Hanna and, with animators Danielle Johnson and Joseph Coleman, highlight lines and shadow shapes were drawn on each frame to block out how lighting would sit on The Devil's face. Those frames were then scanned in and digitally painted in flat colors. From there, the highlights and shadows were separated and pitched and shaded, with each frame hand tweaked to maintain smoothness. Multiple passes were performed on the color shading to refine it into finals, which were then serialized and given to programmers to put into the game and sequence the attack queues to match the gameplay prototype design.

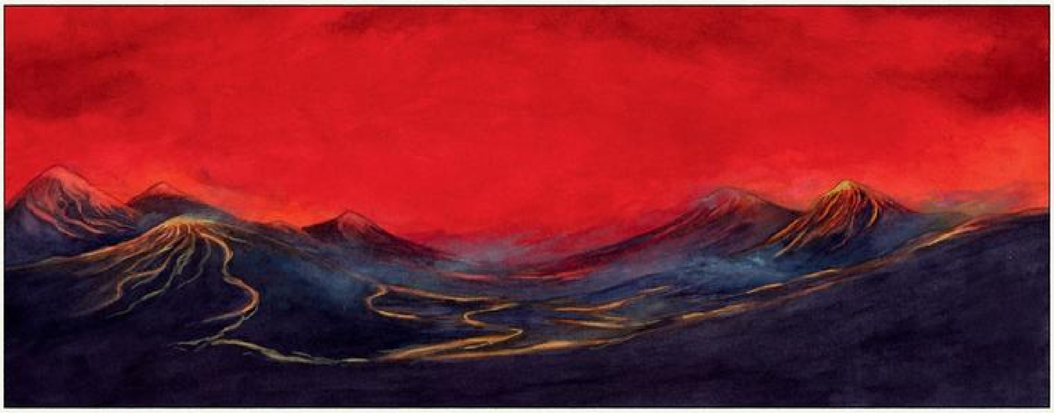
In totality, The Devil has almost twenty-five hundred frames of animation, worked on by seven artists, representing over a year of work hours.



For The Devil's death animation loop, we wanted to use the traditional cartoon "bandaged and beat up" look commonly used by animators like Tex Avery. To animate the motion of the face stretching, artist Tina Nawrocki would often use a mirror and act out the scene while drawing.





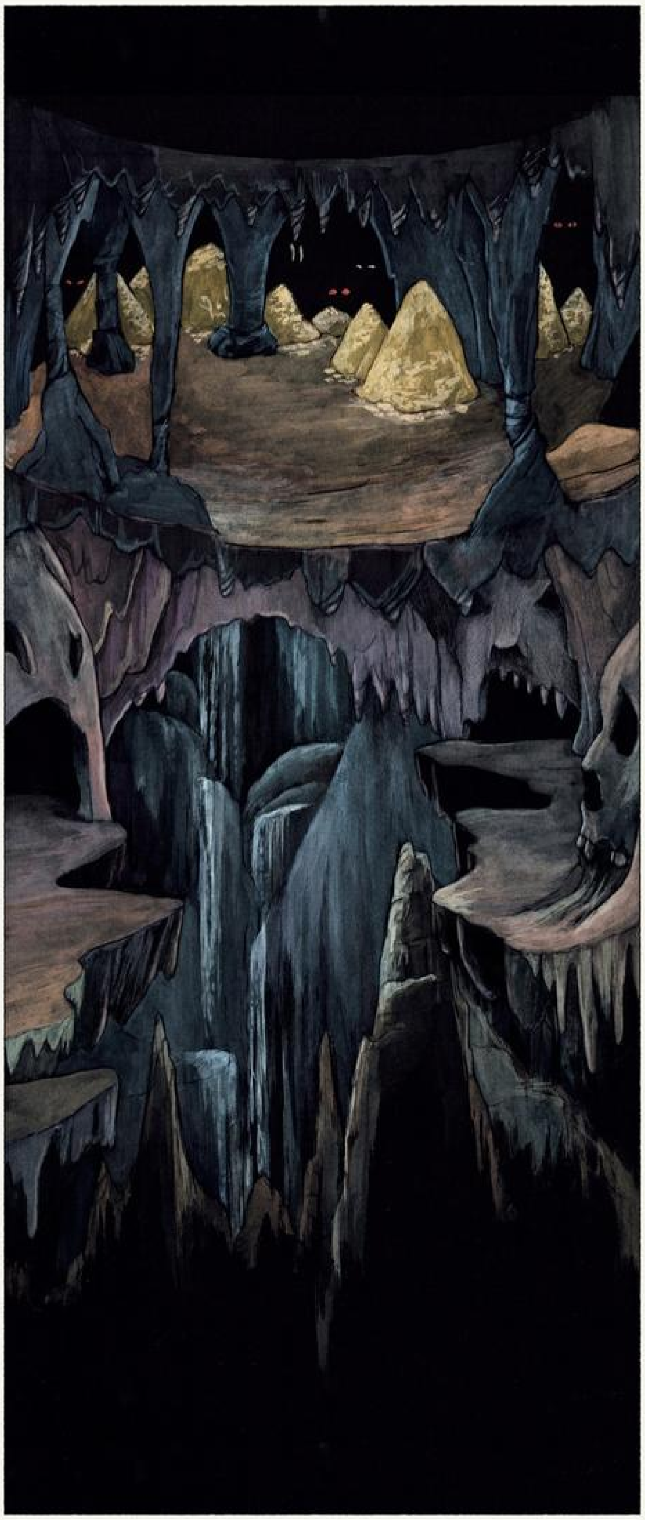


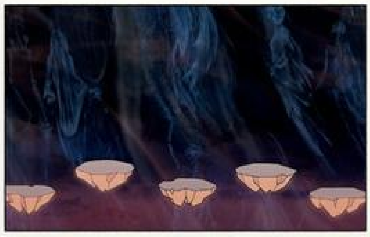
One Hell of a Time Background

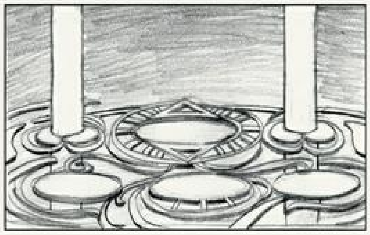
LIKE THE ANIMATION FOR The Devil, we wanted the background for his stage to represent the apex of our tribute to the art and artists of the 30s as well as the classic games that inspired us. From the framing of the throne, to the art deco architecture encrusted with gold accents, we wanted The Devil's residence to exude power, excess, and malevolence. Early concept sketches by background painter Caitlin Russell started with much more cubist accents (popular in early art deco buildings of the 20s), but we moved to more garish detailing in the palace to mix with the jagged lines of the chair to convey the clash of classic glamor with an aggressive edge.

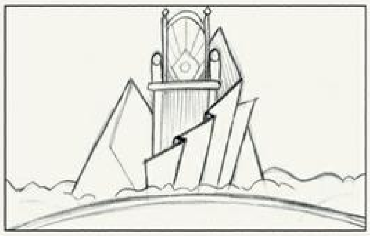
To animate the smoke billowing from the volcanoes in the far background, we used an old Disney trick of filming real smoke against a black background, separating it frame by frame, and looping it over itself produce the plumes. Also of note, there are six volcanoes, six pillars, and six spikes on the chair, as the number of the beast needed to be included.

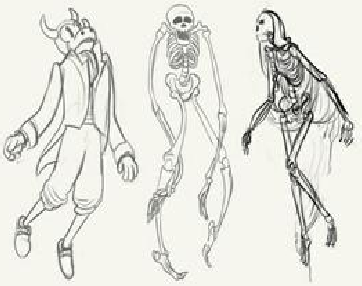
For the final descent into hell, we used a whip pan similar to ones used in Fleischer's Superman cartoons, flying by the stacks of gold he's accumulated from his dastardly casino. Once in the depths, we referenced the tortured souls of from Disney's *Fantasia* to create our spirits floating through the far background, seen in the pencil sketches opposite.

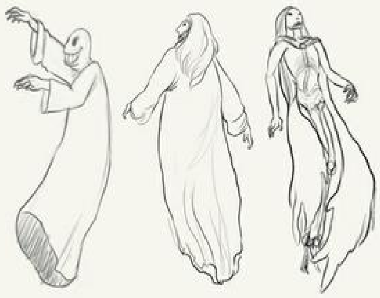


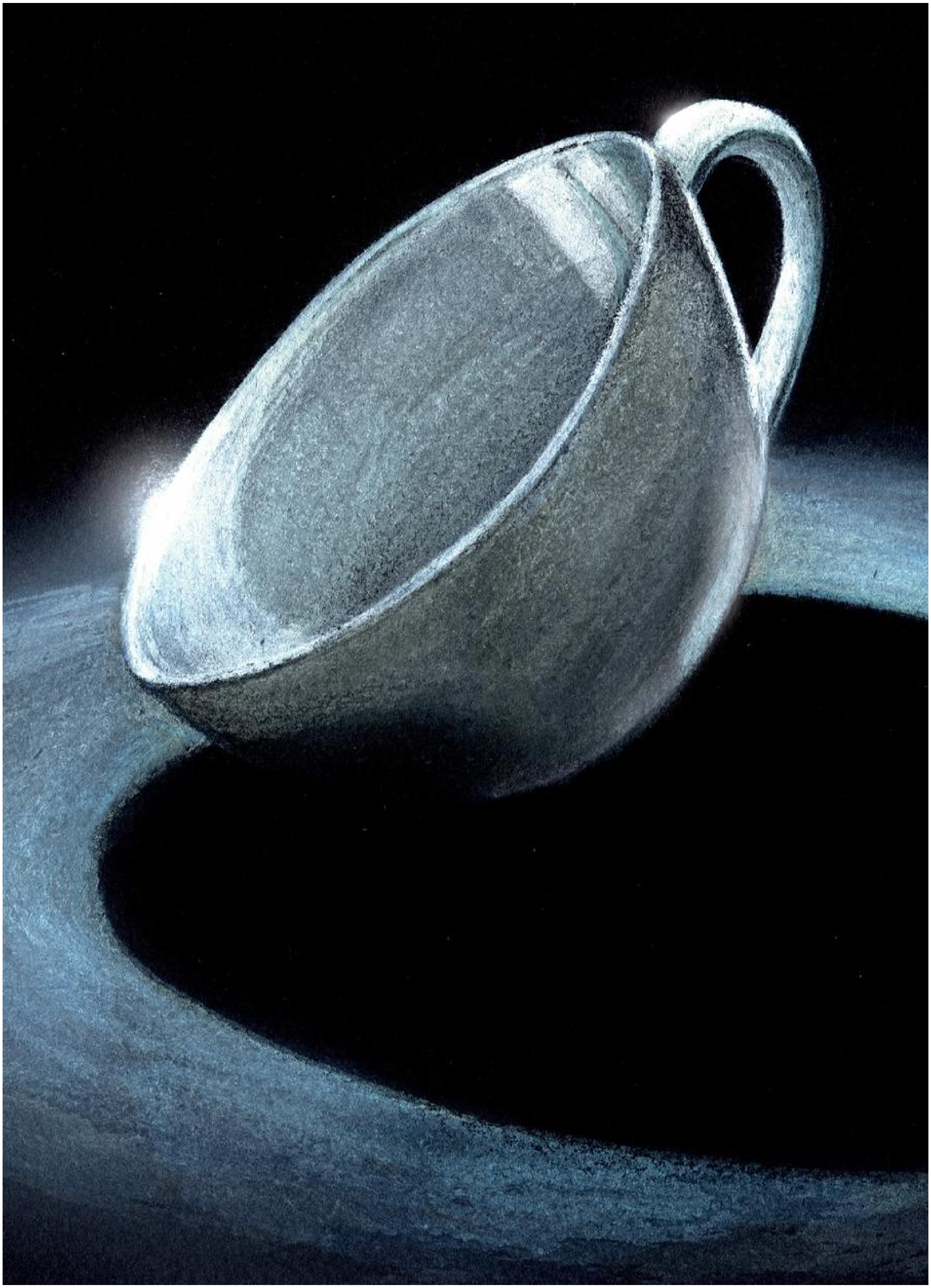


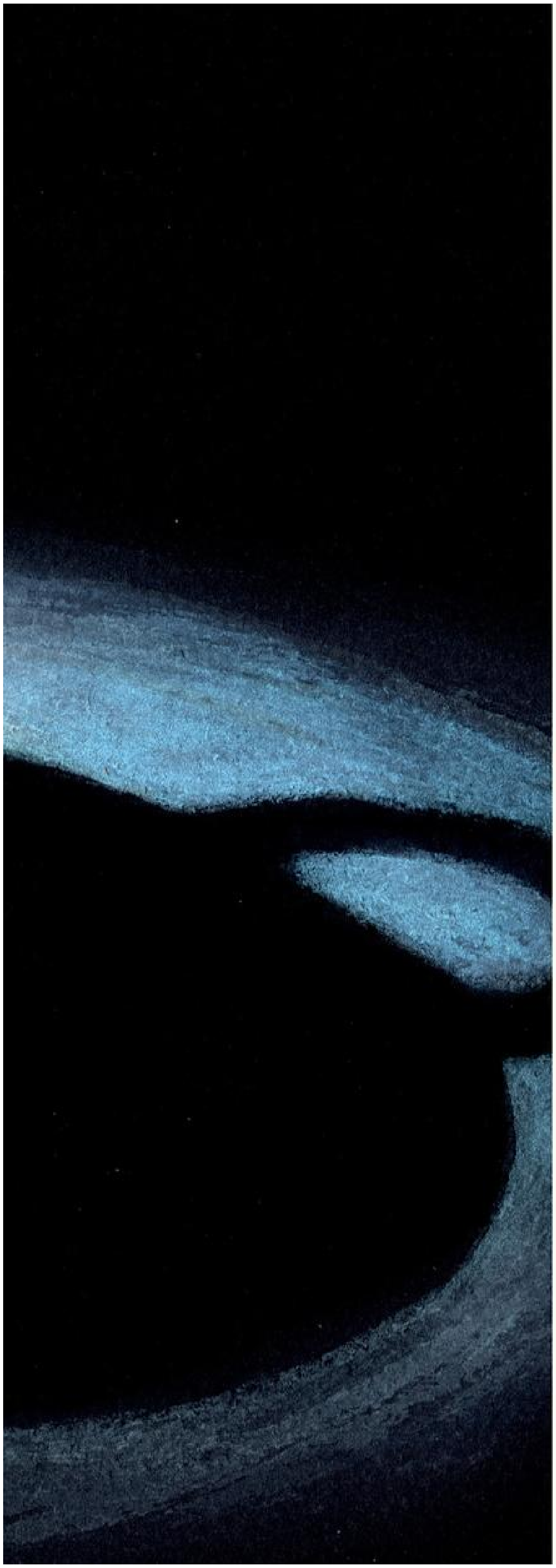












Chapter VII:

Delightful Details

THERE'S A SAYING IN DESIGN that it's just as important to use beautiful wood on the back of the cabinet as it is on the front. That is, to invest care and attention into perfecting the small details that people may not notice, but which will delight those who do. For us, it was exceptionally important during *Cuphead*'s development to sweat the small things.

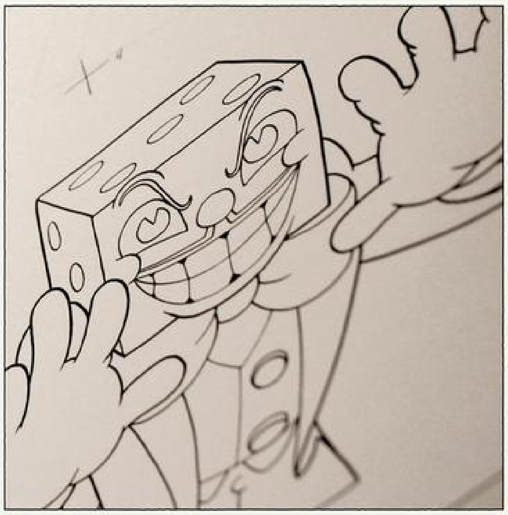
As a touchstone for the game's UI, we steeped ourselves in video games that had minimal, highly focused styles, but given that we were filtering everything through a cartoon lens, there were some design challenges that sat with us for as long as two years as we tested, iterated, and took time away to let new ideas sink in. From an artistic perspective, we looked to classics like *Super Mario World*, which is an absolute master class in building a game world that feels great to play in, with lots of character and doting detail. Disney was also a great reference point, but not in the places you may think: their 16-bit game catalog like *Aladdin* and *The Lion King* are examples of games stuffed to the brim with background animations, visual effects, and other details you can find as you explore (and re-explore).

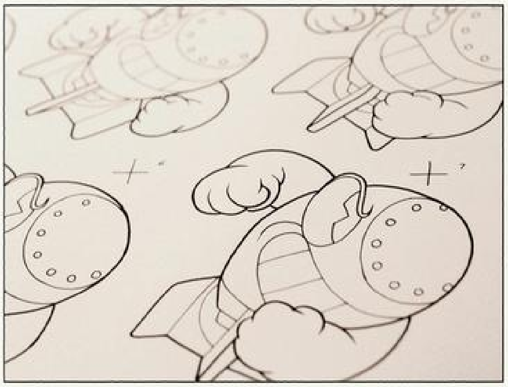
And of course, we immersed ourselves in the authentic natural materials of the era, from Maja Moldenhauer inking the whole game by hand on paper, to our scanning in scuffs and scratches from reels of film.

Inking

WHILE ON MATERNITY LEAVE from her job in the financial sector, Maja Moldenhauer (*Cuphead* executive producer & inker) decided to try her hand at inking for the game, and quickly found herself to be a natural. A complex art form unto itself, inking is a crucial step in bringing any hand-animated work to life. Initially, Maja began by testing traditional nib pens, which are highly sensitive to variations in pressure and speed, on celluloid. Ultimately, though, this method proved cumbersome and inefficient, as nibs only work on authentic celluloid, which is hard to scan, store, and handle (it should only be touched with gloves on!).

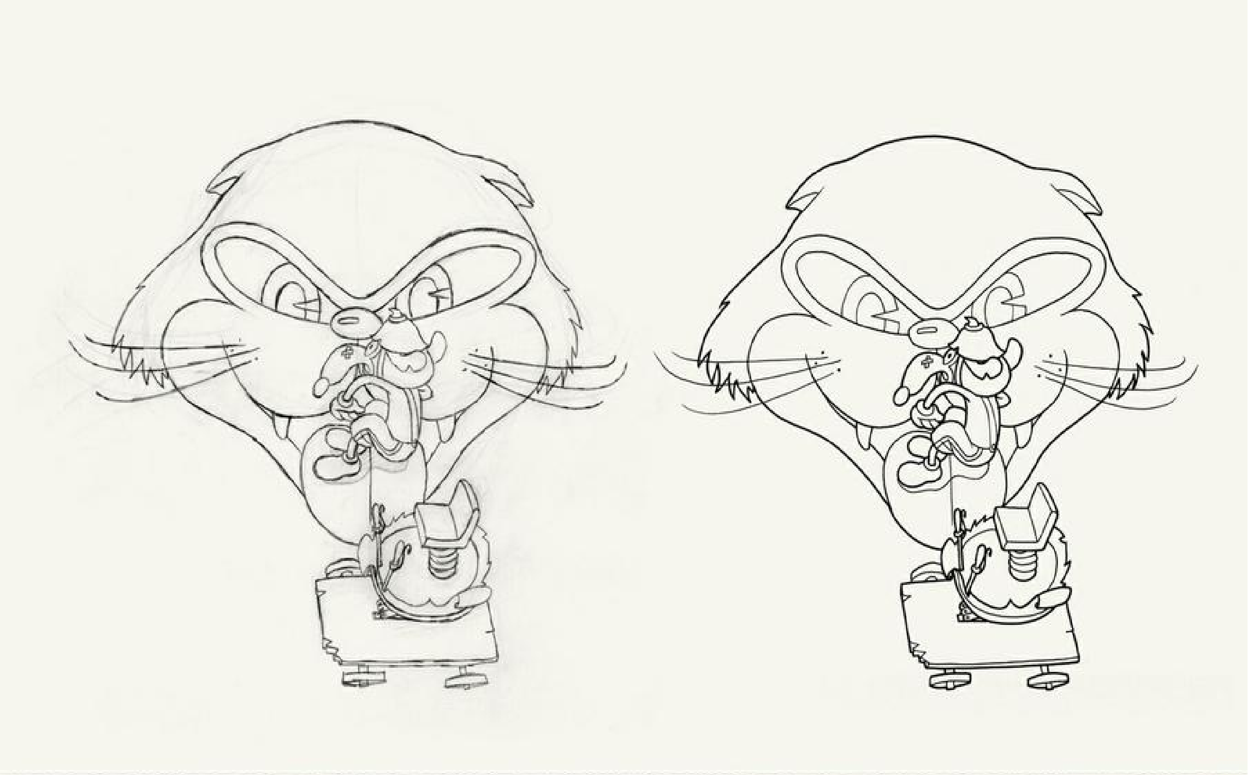
Knowing that we would be using animation paper with peg holes for the pencil animations, we instead began testing a variety of modern inking pens on this paper, eventually settling on Copic Multiliners in a variety of nib sizes (most commonly 0.3, 0.5, and 0.8 mm)—thus allowing us to simulate the variability of the traditional methods with more consistent line flow and precision.

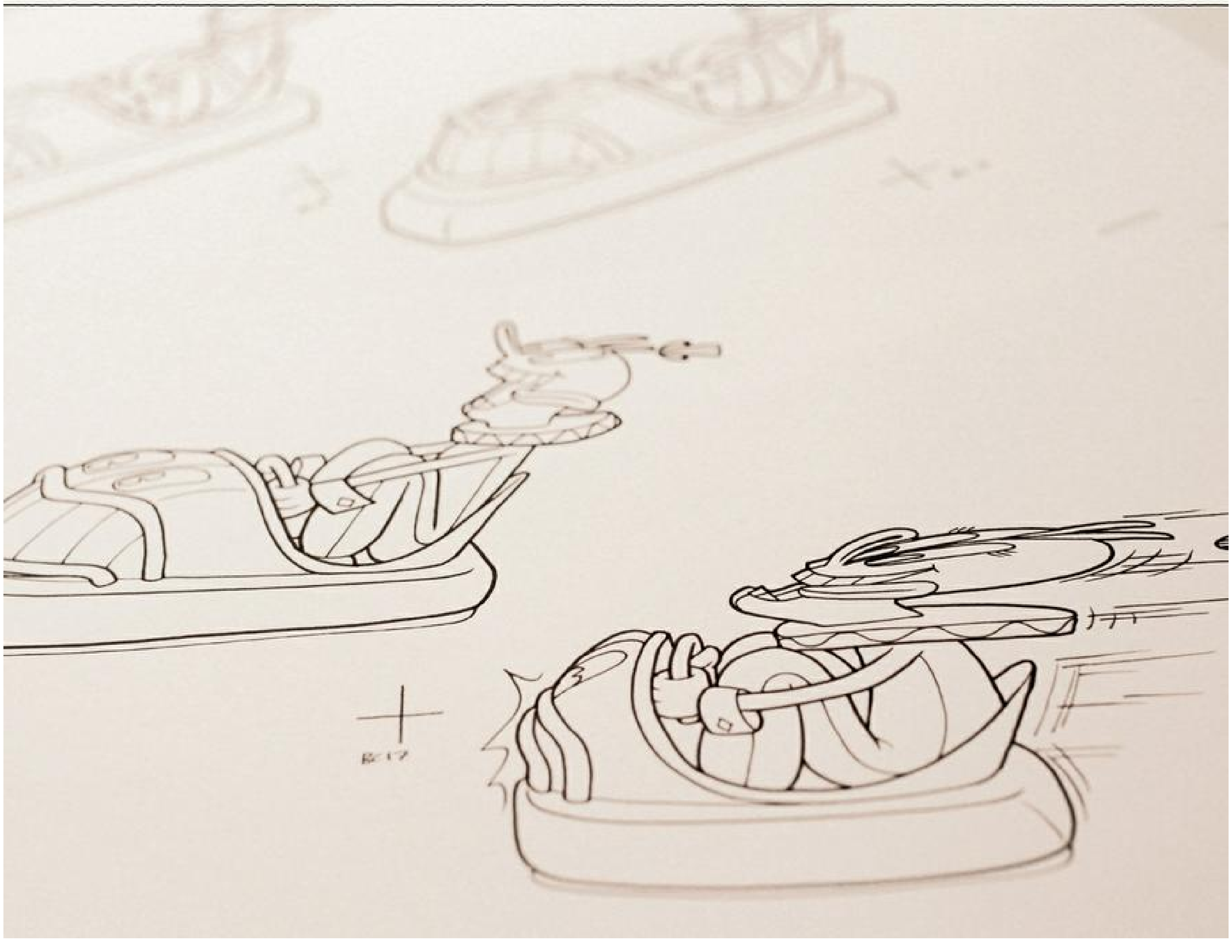


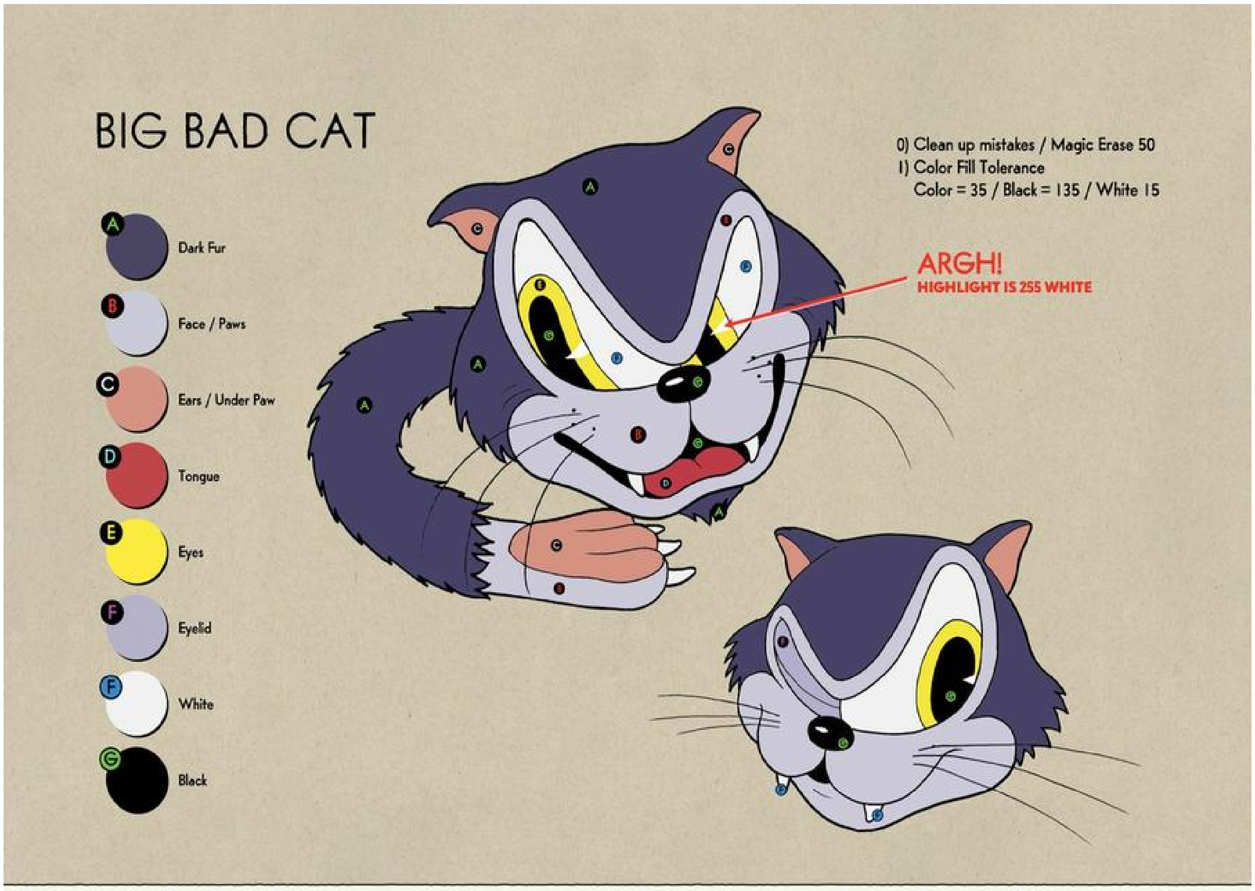


Like with any part of the art process, inking had its own concept phase, with Maja defining the line and pen weights of a boss or enemy. Set up at an animation desk, she would work from direct scans of the game's pencil drawings, configured to allow more than one frame on the same page in order to maximize efficiency. The most crucial part of the process was, and remains, a steady hand to ensure smooth lines with clean tapered edges. On the other hand, if a line was ever open ended, it would require tapering to a sharp point in order to reproduce the lines of a nib pen—a particularly tricky technique! The end result was well worth it, however: inking on paper captured subtle details that were almost impossible digitally, like the way ink settles into paper, the nuanced imperfections of inking pens, and all the other welcome chaos of traditional mediums!

As for Maja's job in the financial sector? She never went back, eventually going on to ink the vast majority of *Cuphead's* 45,000+ frames (with a bit of assistance from animator Danielle Johnson late in production).







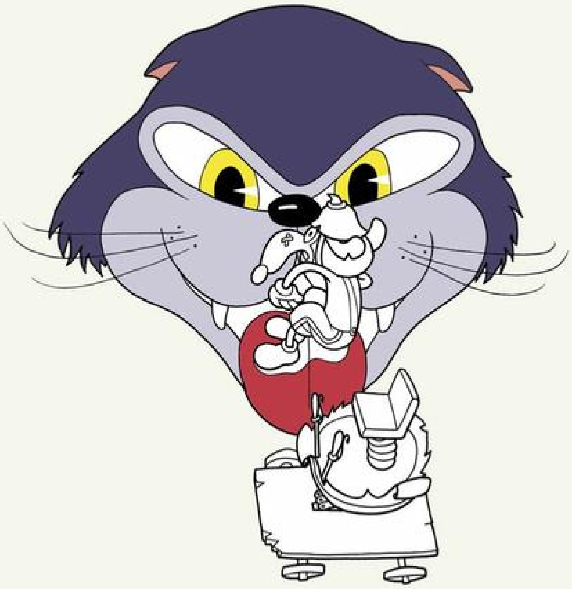
0) Clean up mistakes / Magic Erase 50
1) Color Fill Tolerance
Color = 35 / Black = 135 / White 15

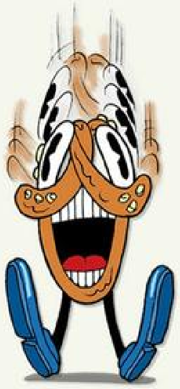
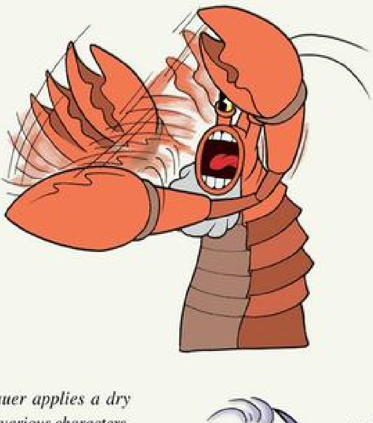
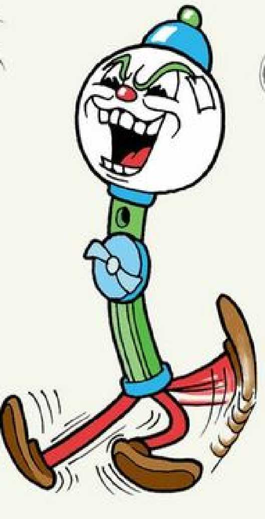
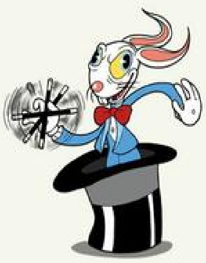
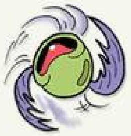
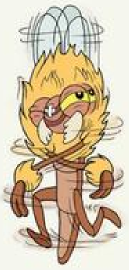
ARGH!
HIGHLIGHT IS 255 WHITE

Coloring

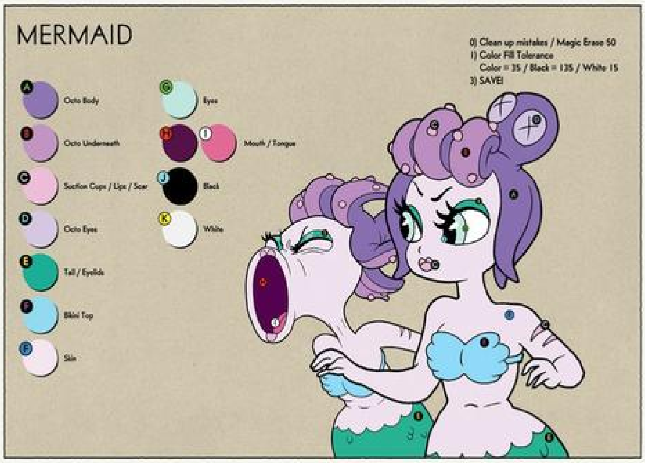
EARLY ON, WHEN CULTIVATING the style and developing the art pipeline for *Cuphead*, we did tests on every stage of the animation—from pencils to final game implementation—to see what we needed to do to perfectly capture the 1930s style. With multiple side by side comparisons between cels carefully painted by hand with gouache and those digitally painted, we couldn't spot any differences, especially once postprocessing effects had been added. This ended up being a massive boon to our production, as the cost (in both materials and production hours) was dramatically smaller with digital painting compared to the incredibly painstaking gouache coloration.

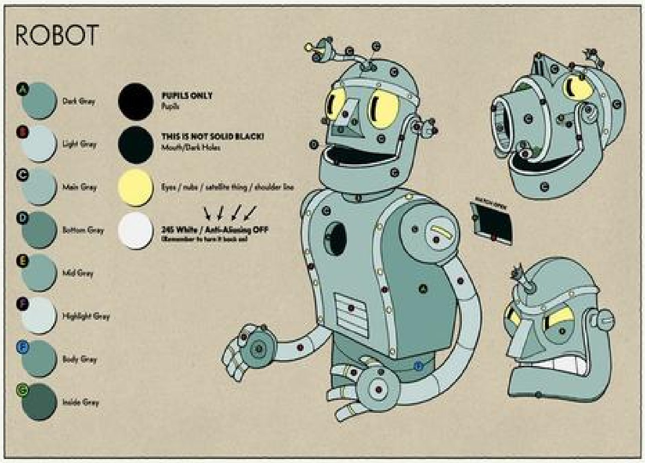
Digital painting also allowed us to make quicker full-character edits, script tedious tasks, and maintain perfect consistency across different animations. Even with the computer coloring, we always took great pains to ensure visually comparable coloration techniques. And those postprocessing effects we mentioned? They included everything from chromatic aberration and nonuniform blur filters, to real scans of film for authentic grain, noise, scratches, stains, and hairs—all to reduce the synthetic feel of high-resolution digital sprites and mimic the types of issues the filmmakers of the era would have faced with the less advanced technology they were using.

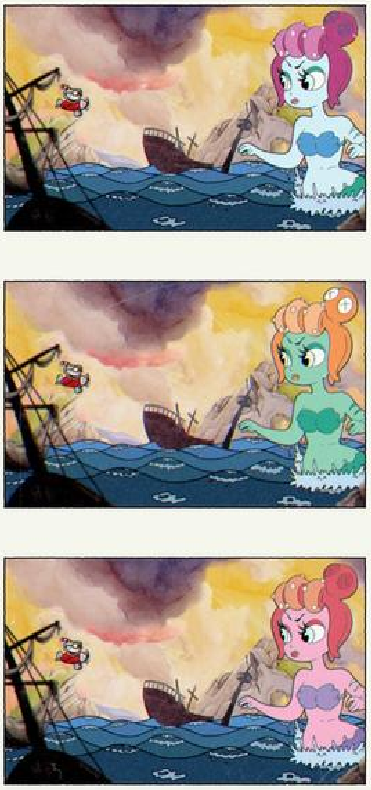


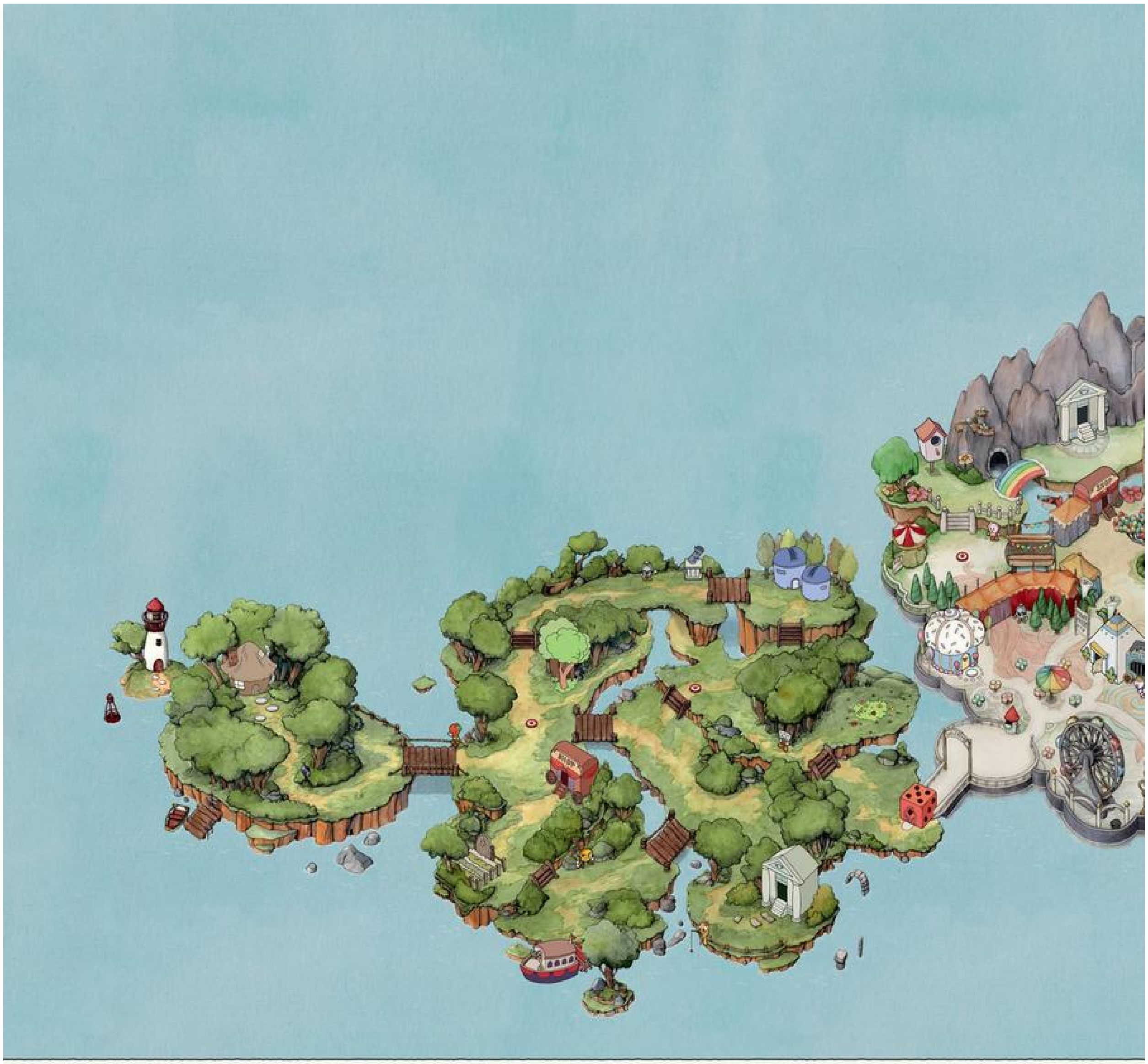
Above, *painter Tyler Moldenhauer applies a dry brush technique to finished cels of various characters. Similar to smears, dry brushing is another animation technique used to imply rapid motion of a character, attempting to imitate the type of motion blur that occurs in real-life filmed movement.*

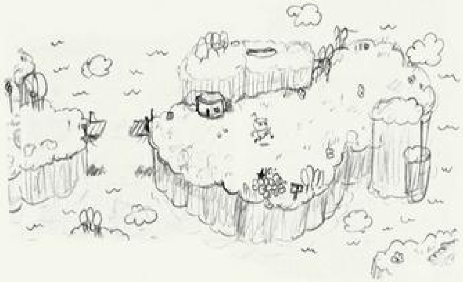

MERMAID
0) Clean up mistakes / Magic Erase 50
1) Color Fill Tolerance
Color = 35 / Black = 135 / White 15
3) SAVE!
A Octo Body
B Octo Underneath
C Suction Cups / Lips / Scar
D Octo Eyes
E Tail / Eyelids
F Bikini Top
F Skin
G Eyes
H
I Mouth / Tongue
J Black
K White

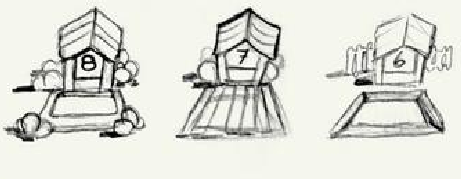

ROBOT
A Dark Gray
B Light Gray
C Main Gray
D Bottom Gray
E Mid Gray
F Highlight Gray
F Body Gray
G Inside Gray
PUPILS ONLY
Pupils
THIS IS NOT SOLID BLACK!
Mouth/Dark Holes
Eyes / nubs / satellite thing / shoulder line
245 White / Anti-Aliasing OFF
(Remember to turn it back on)

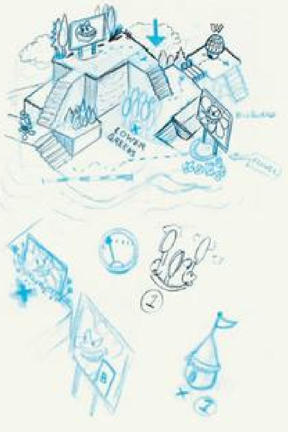


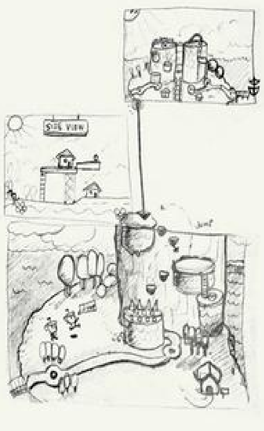
Above, *color tests to determine the final colors of a character were always done against their background to ensure a congruent palette.* Right, *once colors are chosen, a coloring template is created so painters and internal partners use consistent coloration across mediums.*

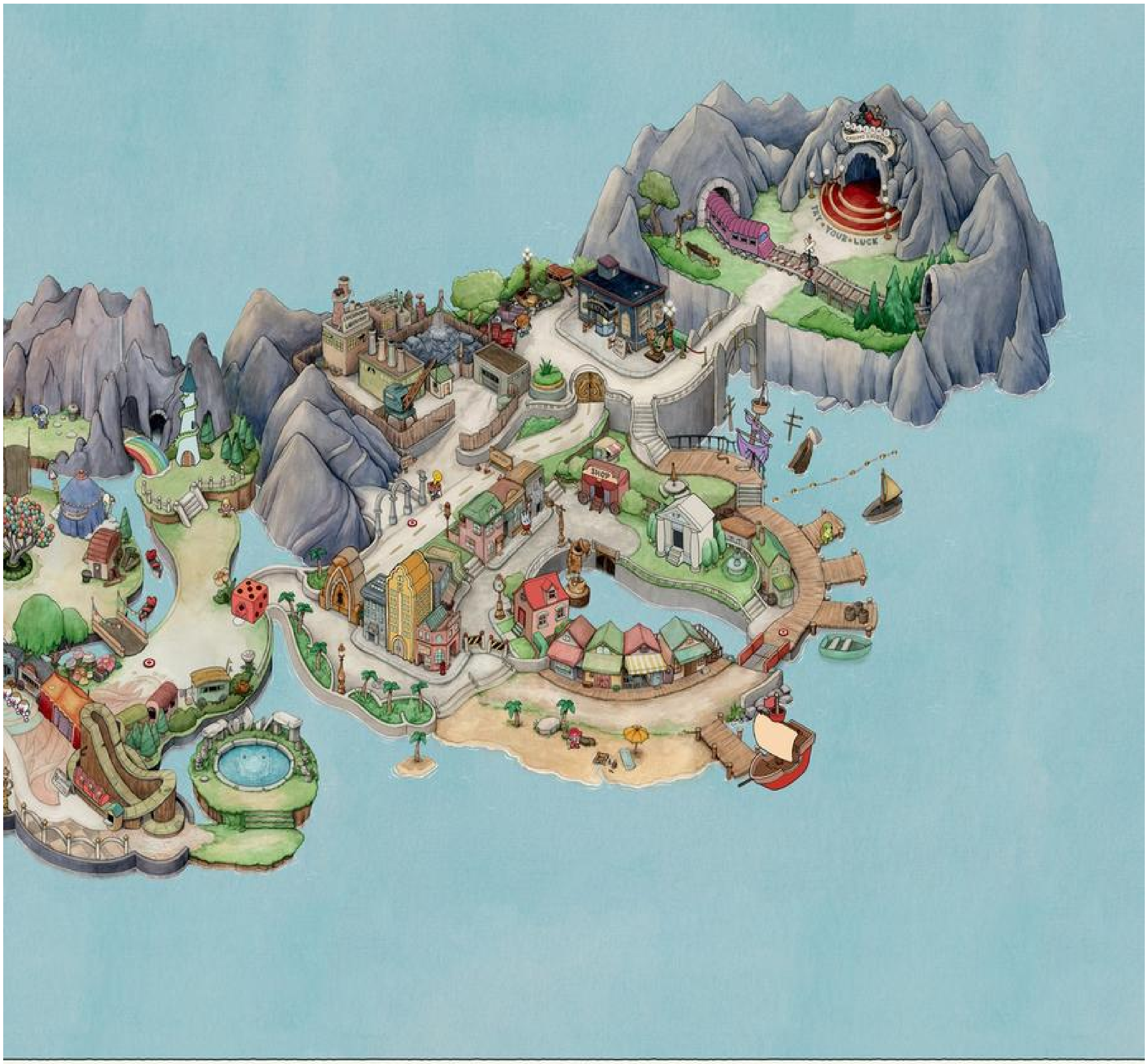





8
7
6

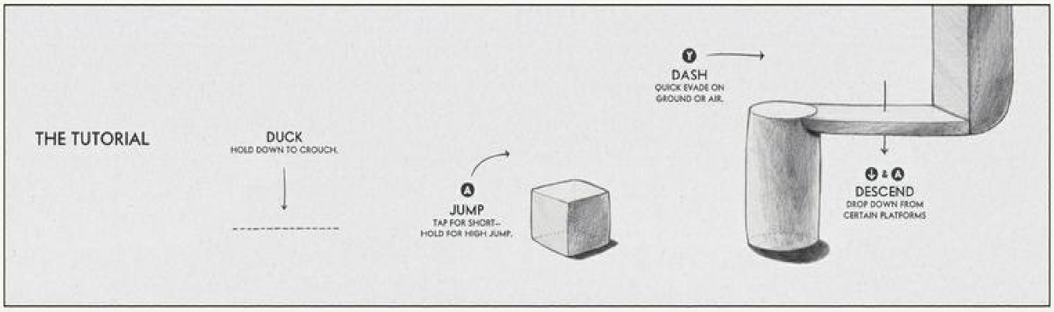

LOWER GREENS

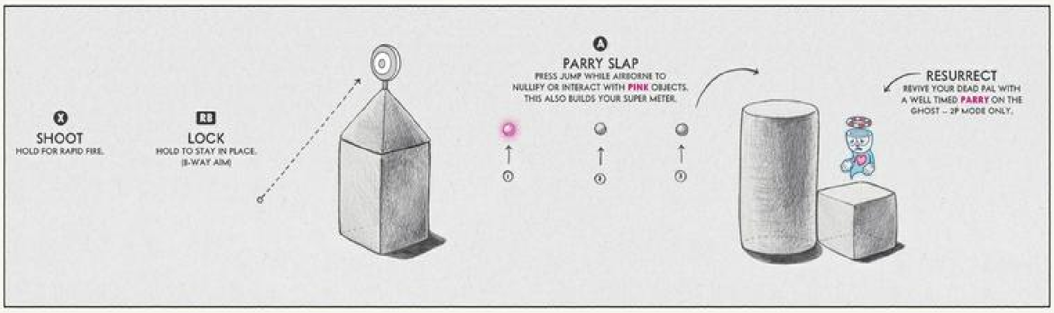

SIDE VIEW

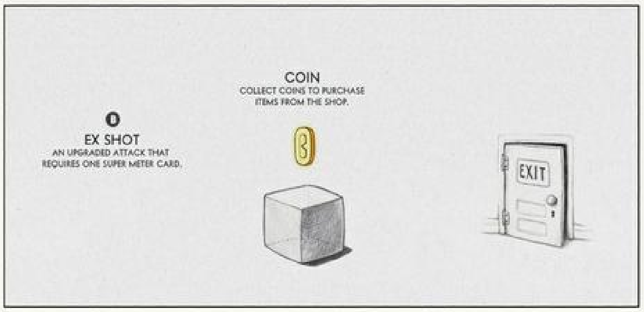


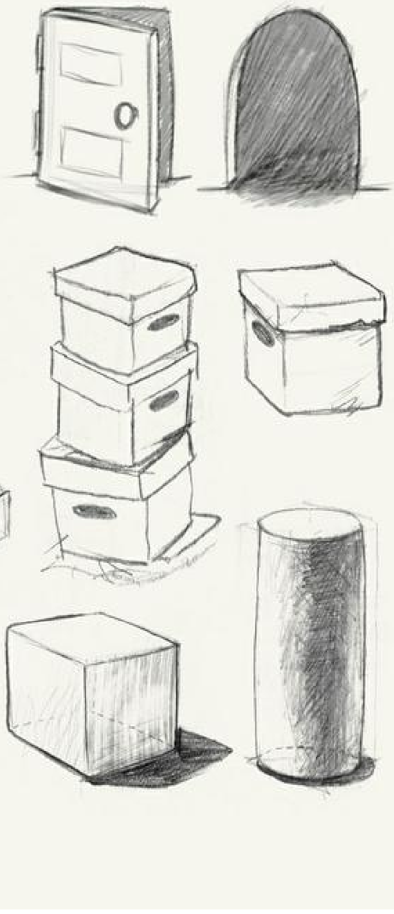
Inkwell Isles Map

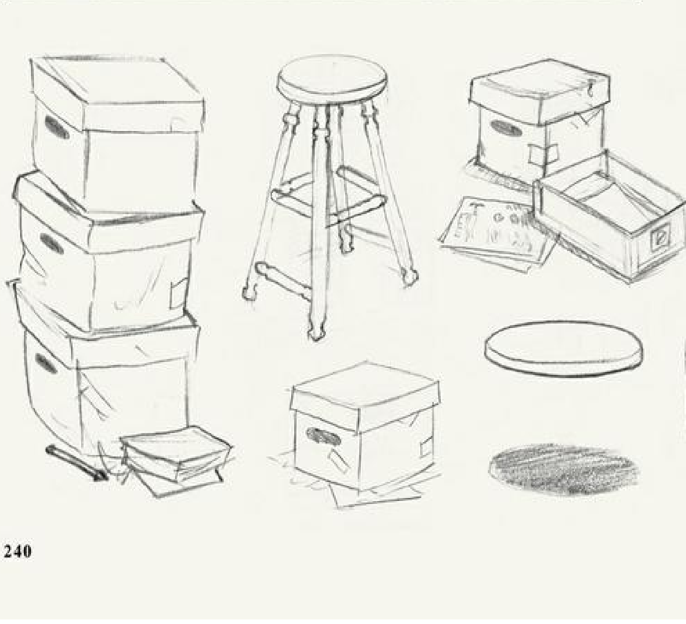
THROUGHOUT *CUPHEAD*'S DEVELOPMENT, we knowingly created several placeholder maps (like the one seen to the right) to help us test the game or to prepare demo builds for trade shows and events. In this way, we were able to make mistakes and explore what we were aiming for in an overworld experience. Ultimately, the most elusive goal we were chasing throughout was the ideal look—a mixture of the kind of instantly legible movement experience from Nintendo's *Super Mario World* with hints of the mystery and freedom we enjoyed from our favorite Japanese role-playing games, all through the lens of a 1930s cartoon.

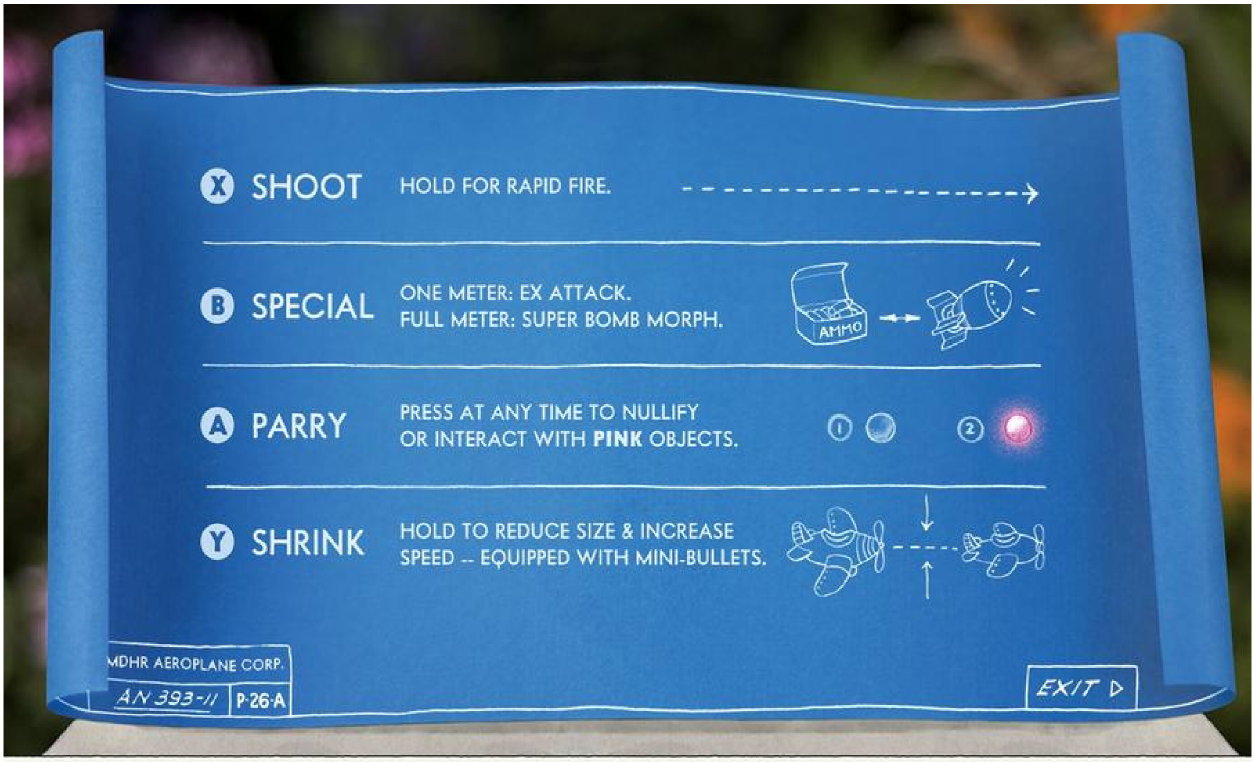

THE TUTORIAL
DUCK
HOLD DOWN TO CROUCH.
A
JUMP
TAP FOR SHORT–
HOLD FOR HIGH JUMP.
Y
DASH
QUICK EVADE ON
GROUND OR AIR.
& A
DESCEND
DROP DOWN FROM
CERTAIN PLATFORMS


X
SHOOT
HOLD FOR RAPID FIRE.
RB
LOCK
HOLD TO STAY IN PLACE.
(8-WAY AIM)
A
PARRY SLAP
PRESS JUMP WHILE AIRBORNE TO
NULLIFY OR INTERACT WITH PINK OBJECTS.
THIS ALSO BUILDS YOUR SUPER METER.
1
2
3
RESURRECT
REVIVE YOUR DEAD PAL WITH
A WELL TIMED PARRY ON THE
GHOST – 2P MODE ONLY.

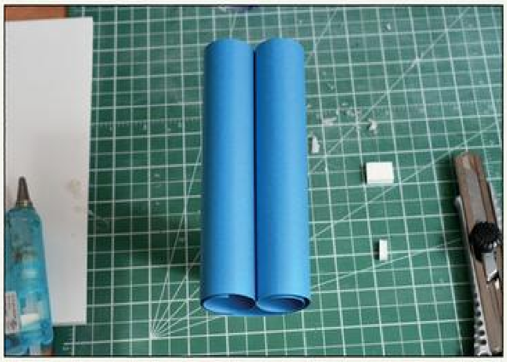

B
EX SHOT
AN UPGRADED ATTACK THAT
REQUIRES ONE SUPER METER CARD.
COIN
COLLECT COINS TO PURCHASE
ITEMS FROM THE SHOP.
EXIT

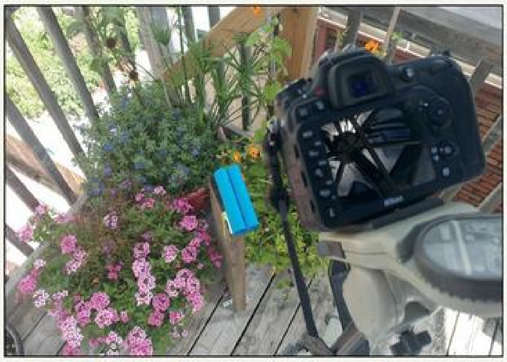






Ⓧ	SHOOT	HOLD FOR RAPID FIRE.
Ⓑ	SPECIAL	ONE METER: EX ATTACK. FULL METER: SUPER BOMB MORPH.
Ⓐ	PARRY	PRESS AT ANY TIME TO NULLIFY OR INTERACT WITH **PINK** OBJECTS.
Ⓨ	SHRINK	HOLD TO REDUCE SIZE & INCREASE SPEED -- EQUIPPED WITH MINI-BULLETS.





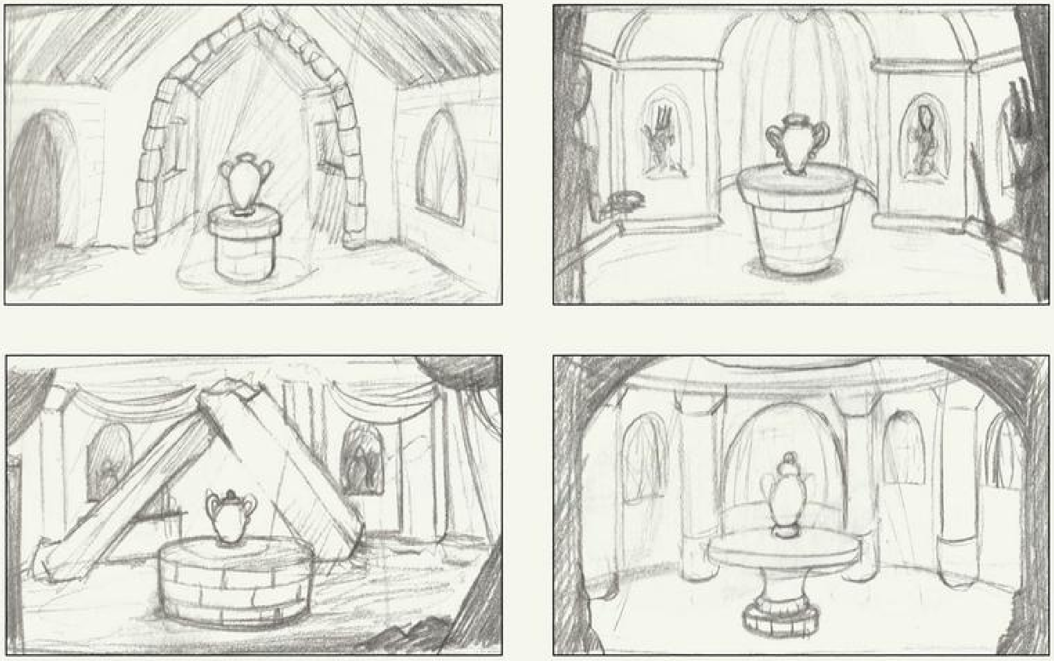
Tutorials

IN THE SAME WAY THAT LEARNING the rules of a game is the cornerstone of mastering it, an artist would be nothing without their most fundamental tools of the trade. So when it came time to teach players the core skills they would need to wallop foes in *Cuphead*, we quickly gravitated toward the idea of paying homage to classic physical materials. Hosted inside a book, the game's introductory tutorial imagines a simplistic "paper universe" rendered in a charcoal sketch style, filled with the (literal) building blocks that make up art. We initially floated concepts that would have Cuphead running through the actual materials of an artist, like a drawing stool and boxes of art paper, but the more generic we went, the more clear and focused things felt.

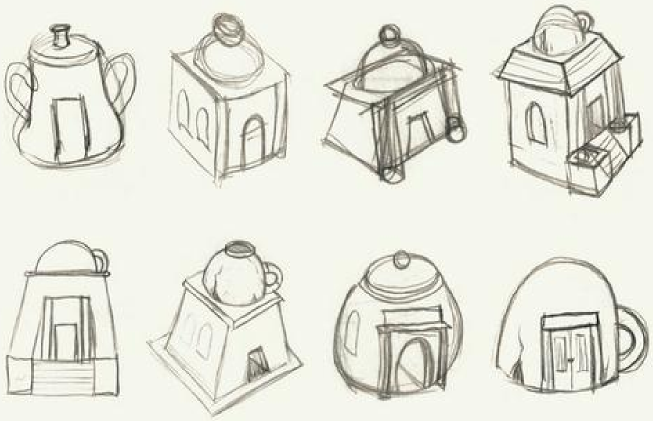
Thinking of the mechanical nature of Cuphead's plane, using a blueprint (which were in fact originally done on light-sensitive blue paper) felt only right—not to mention our affection for the blueprint depictions in classic *Looney Tunes* cartoons. Initially, the plan was to have *Cuphead*'s prop master Ali Morbi construct a roll of blueprint-like paper out of Bristol board, and photograph it outside. However, Ali had the idea to construct a makeshift pedestal for the blueprint and, with the assistance of painter Caitlin Russell, took photos in rapid succession as it was slowly unrolled with barbecue skewers. This allowed for a vintage, almost stop-motion animated feel to the tutorial opening.

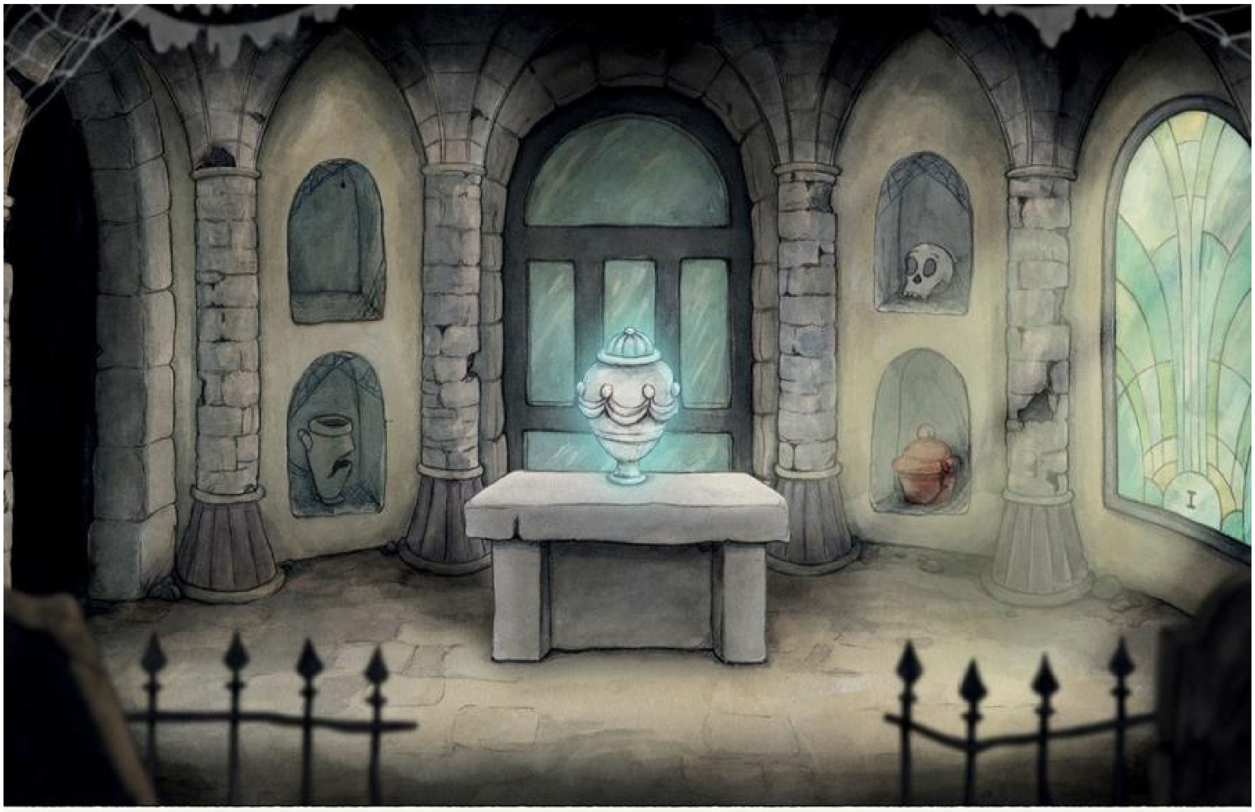
Mausoleums

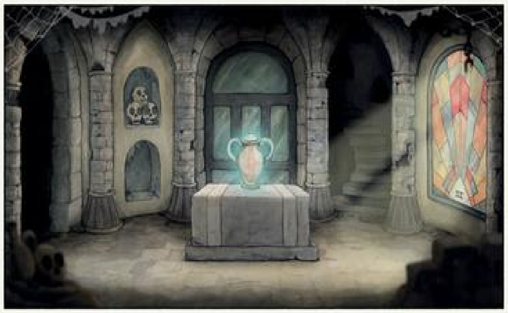
JUST AS *SUPER MARIO WORLD*'S haunted houses, filled with ghostly Boos and dangerous skeletal Dry Bones Koopas, added a spooky atmosphere to that game's otherwise colorful world, we liked the idea of having a thread of the magical, mystical, and malevolent running through *Cuphead*. And from early on in development, we had concepted and designed a set of bonus challenges centered around testing the player's mastery of the timing-based parry mechanic. As the idea for this challenge morphed and changed, we found that the patterns in the prototype leant themselves well to enemies that might "poof" away when hit . . . and who better to do that than ghosts? Pulling from influences ranging from Disney's 1933 toon *The Mad Doctor* (for the backgrounds) to Fleischer Studios' 1934 Popeye short *Shiver Me Timbers!* (for the ghosts), the idea of our very own classic ghost houses was born. A fun fact you may not have noticed: while purposefully similar to create proper player expectations, the design of each mausoleum's stained-glass window is different, and the background also changes from one to the next!

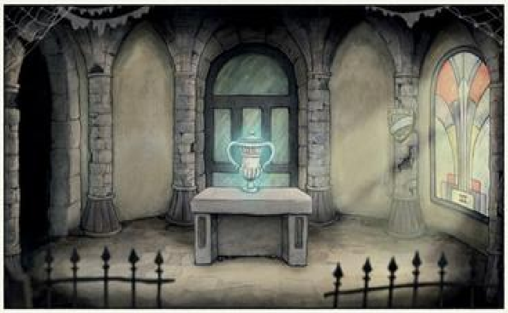


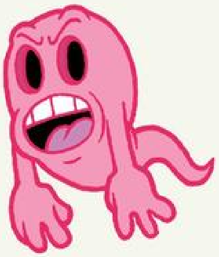
Sketches from background painter Caitlin Russell exploring possibilities for both the interior (top) *and world map icon* (right) *of the Mausoleums. Ultimately, we moved away from the more on-the-nose cup reference in the direction of classical architecture.*

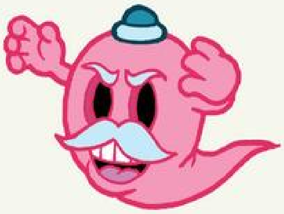


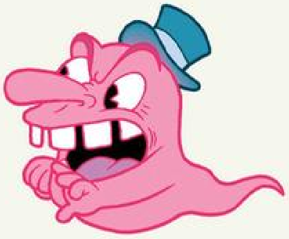


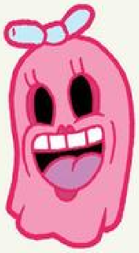


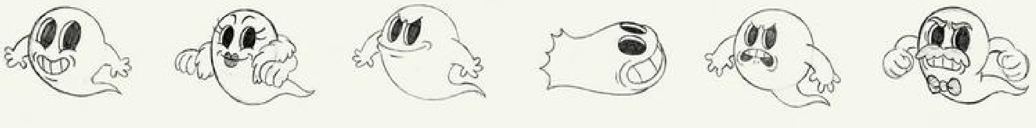


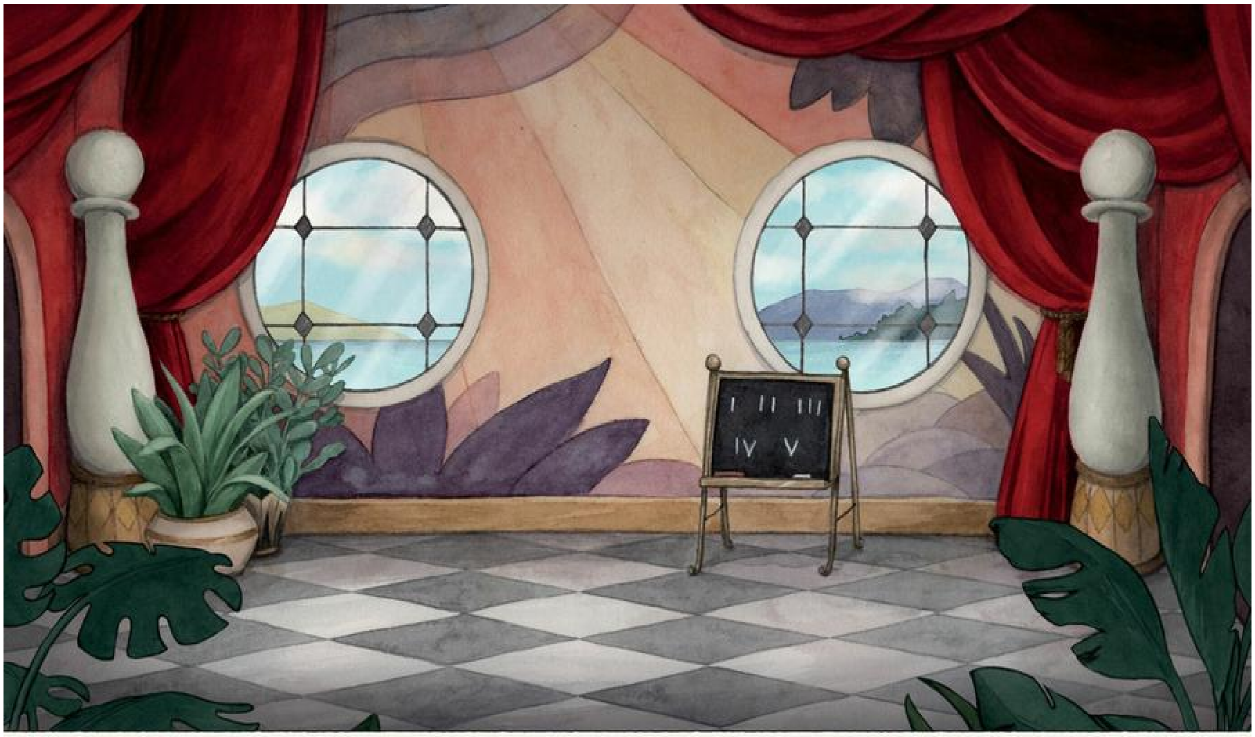








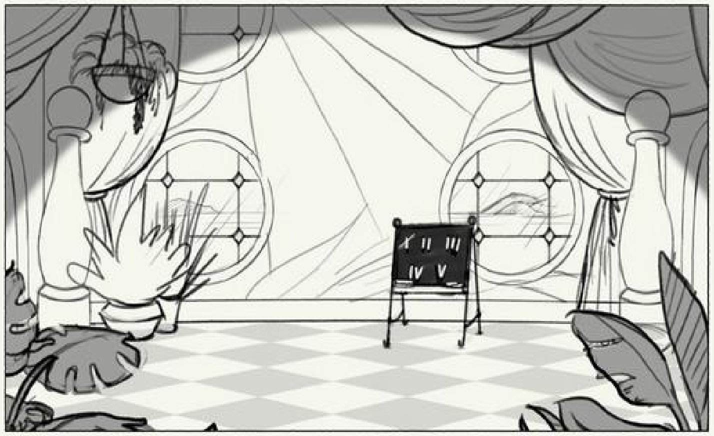


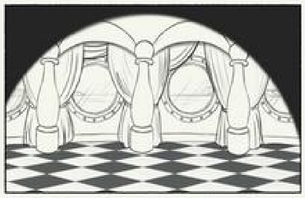


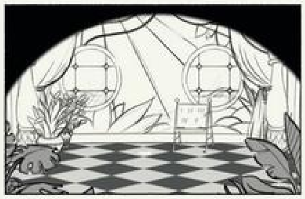
Die House

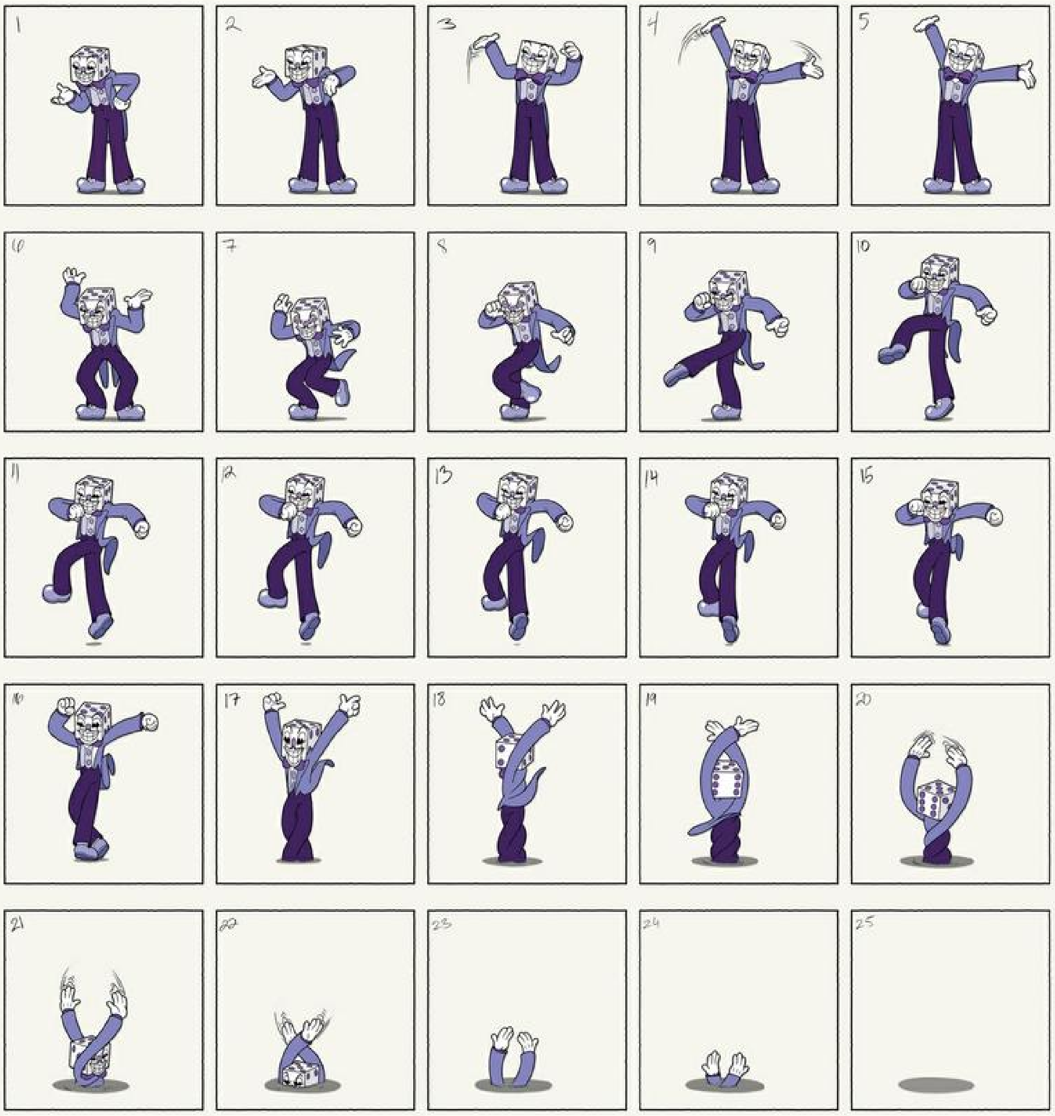
STANDING IN YOUR WAY imposingly between each of *Cuphead*'s Inkwell Isles are outposts manned by The Devil's sly right-hand, King Dice. These "Die Houses" were designed as a way to gate progression and ensure players were collecting the right number of soul contracts before moving onto the next section of the game, but also allowed us to build out the game's world and narrative a little more. Visually, the red drapery, ostentatious chess pieces, and Aaron Douglas–inspired backgrounds were designed to make each Die house feel like a little travelling lobby for The Devil's casino, extending his reach and grasp across the Inkwell Isles. Were they always there to keep an eye on residents? Were they purpose-built for Cuphead and Mugman to check up on their progress? We liked the idea of some mystery around where they came from.

A particular fan favorite from the soundtrack also makes its appearance here, in the form of King Dice's character theme song, sung by voice actress Alana Bridgewater. A rare instance in the game of giving voiced lines to a character, this song was the brainchild of composer Kris Maddigan, and allowed us to further convey King Dice's devious charm and guile. The kind of guile that makes him perfectly suited to slither away into a hole in the floor with one last showy twist.





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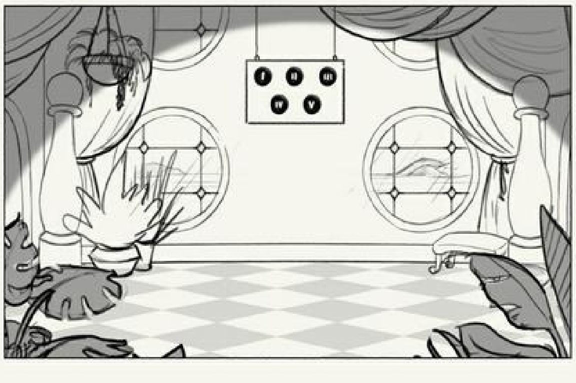
I
II
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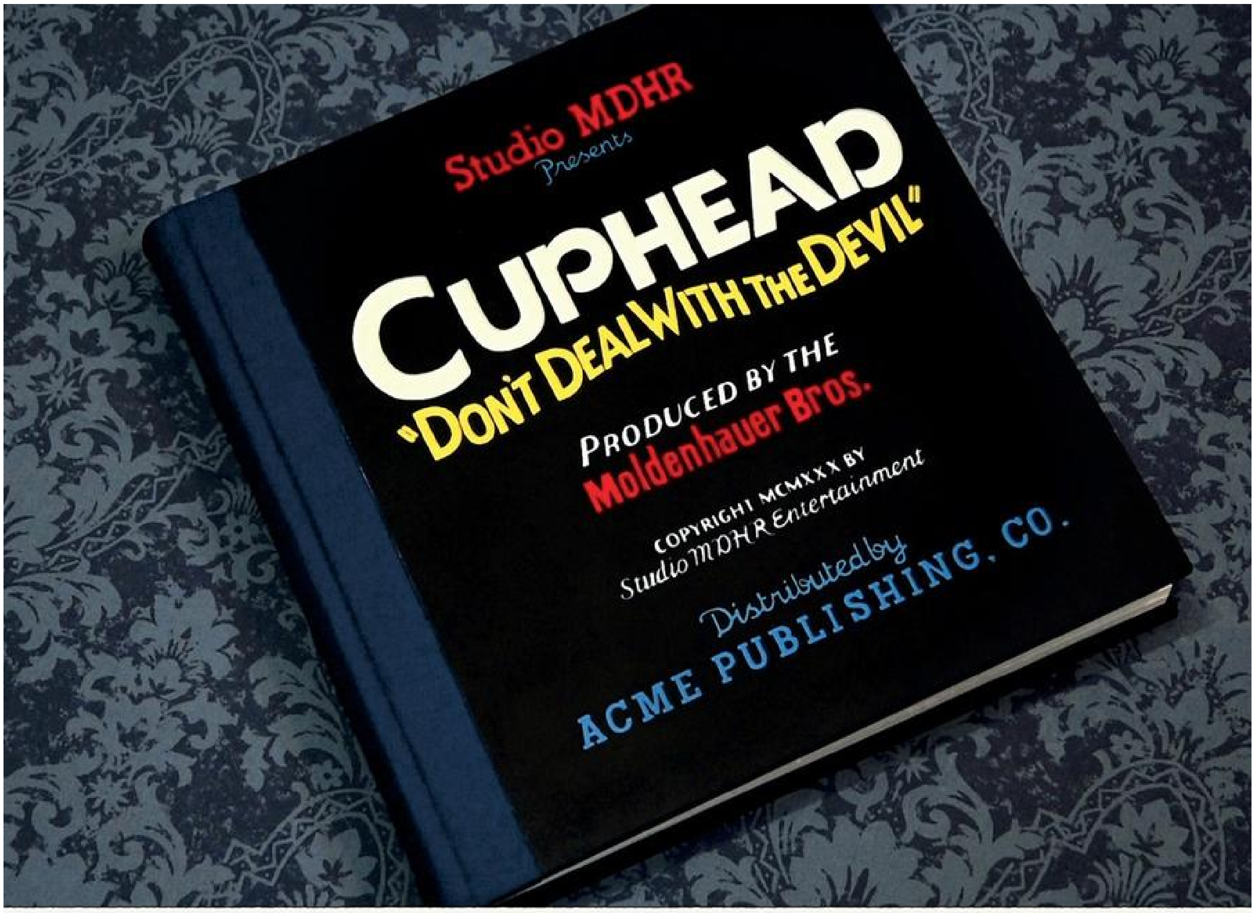
Studio MDHR
Presents
CUPHEAD
"DON'T DEAL WITH THE DEVIL"
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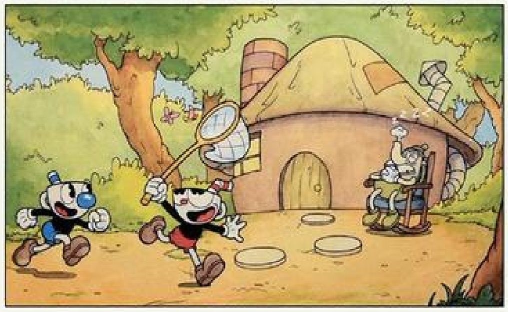
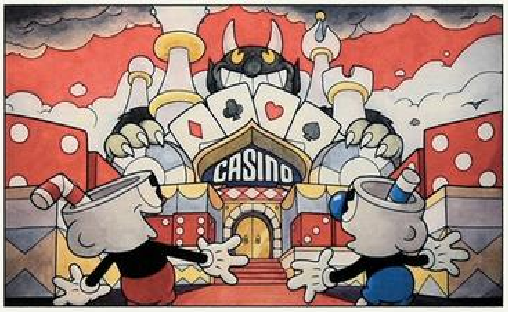
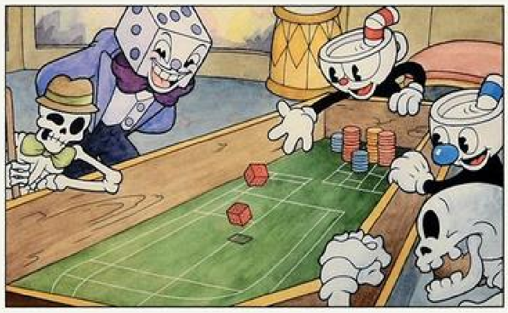
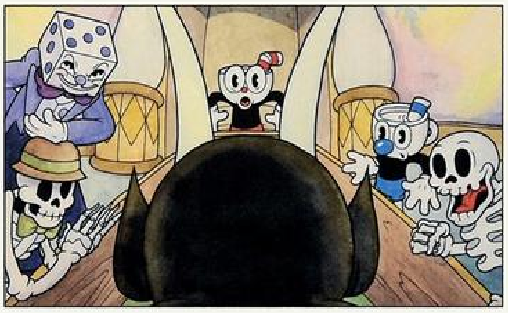
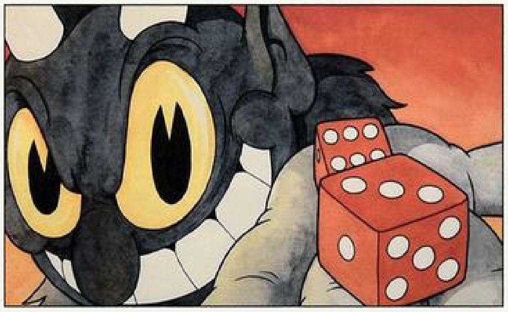
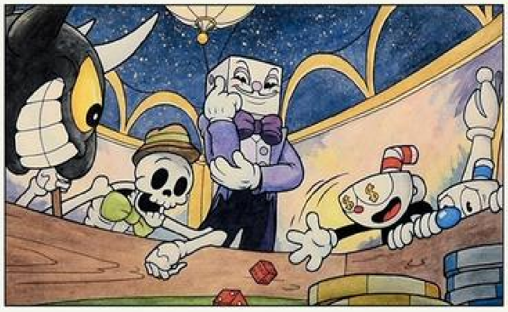


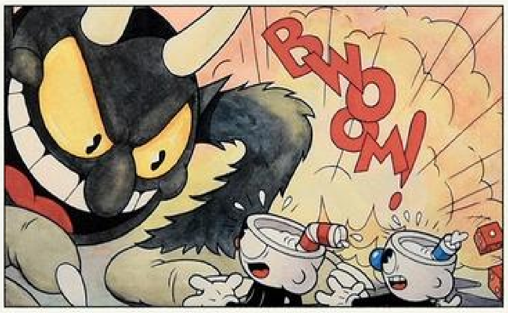

CASINO

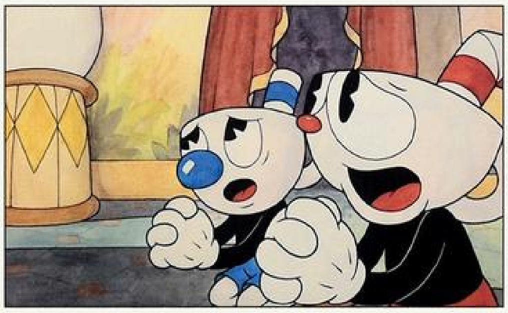


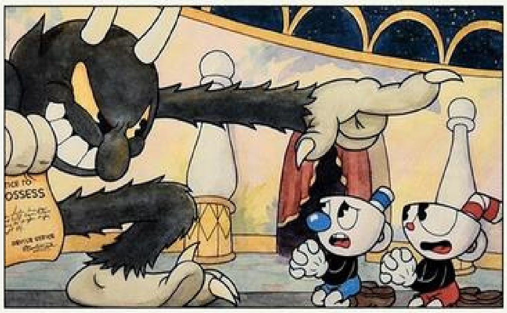


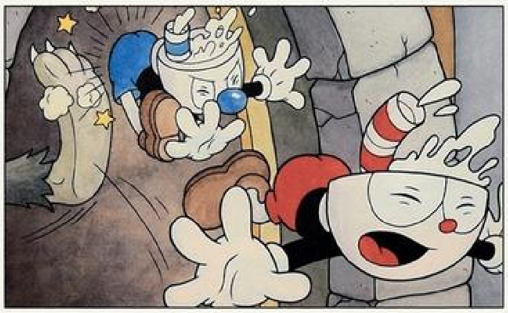










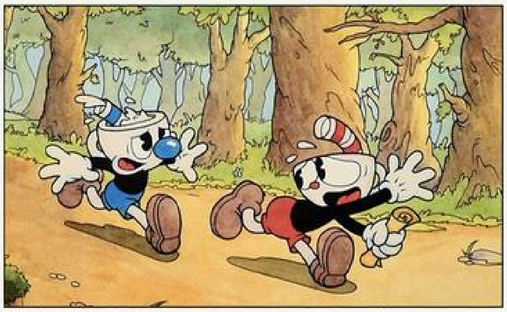


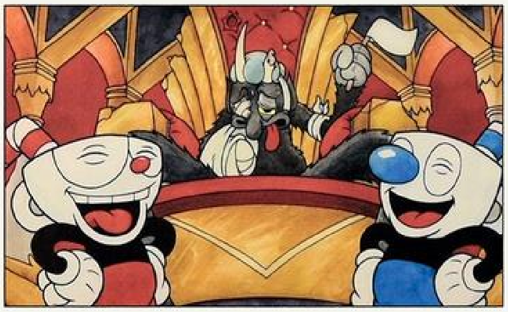
Storybook

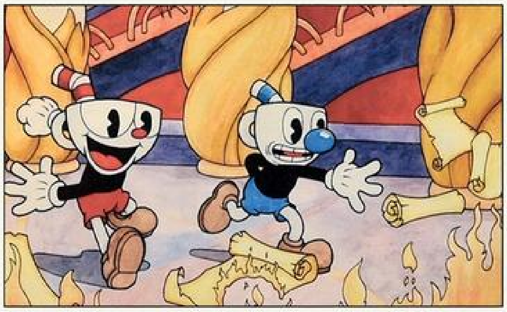
FROM THE START, Cuphead was going to be in debt to The Devil. We weren't sure exactly why or how, but that was the conceptual baseline we started from, fleshing out the story for the entire game from that pitch. As ideas took shape for everything from the casino, to King Dice, to the idyllic Inkwell Isles, the story connecting them all went through many iterations on our way to finding the right tone for our world and characters. We strove to strike a balance between lovable but mischievous protagonists, put in the type of dire situation seen in the more twisted cartoons of Fleischer's oeuvre.

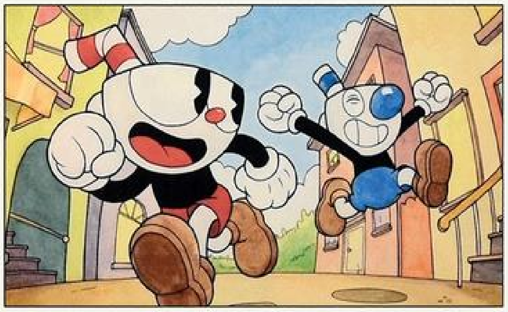
To convey the plot of *Cuphead*, we knew we had to keep everything snappy as possible. *Cuphead* was to be a fast action game first, so we prioritized brevity in the telling, with no long drawn-out cutscenes or extraneous details. Characters introduced, motivations established, on to the action!

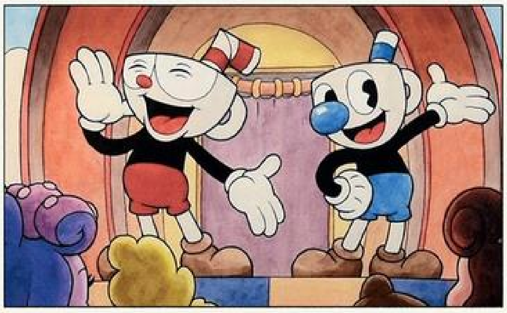
For the storybook illustrations, we looked at 30s magazine covers, title cards, illustrations and storybooks for how they framed characters and played with perspective to aptly capture the look of the period. To achieve the proper textured look, painter Caitlin Russell applied watercolor paints over artist Joseph Coleman's layouts and then Maja Moldenhauer inked on top of the paint, congruent with the technique of children's books of the era.

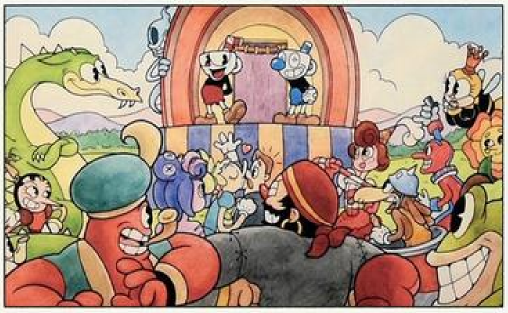


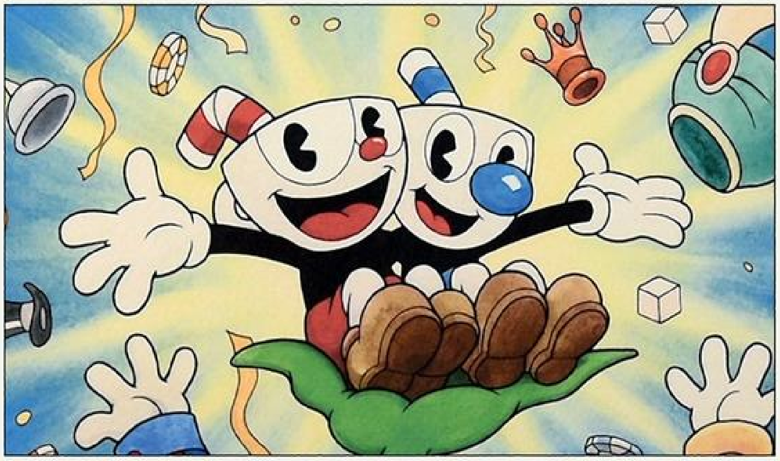




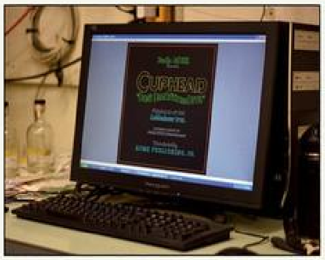








Storybook paintings for the intro and ending by Joseph Coleman and Caitlin Russell. The ending was our only opportunity show all of the boss characters in their happy and non-Devil-manipulated forms, so we tried to sneak in a few details that spoke to their more natural personalities.



CUPHEAD
"DON'T DEAL WITH THE DEVIL"
ACME PUBLISHING, CO.

When outlining early concepts for the introduction and ending cutscenes, we were looking for ways to properly convey the storybook atmosphere we wanted for the game and we had always loved the way some early Disney cartoons would start with the opening of a book to set the mood.

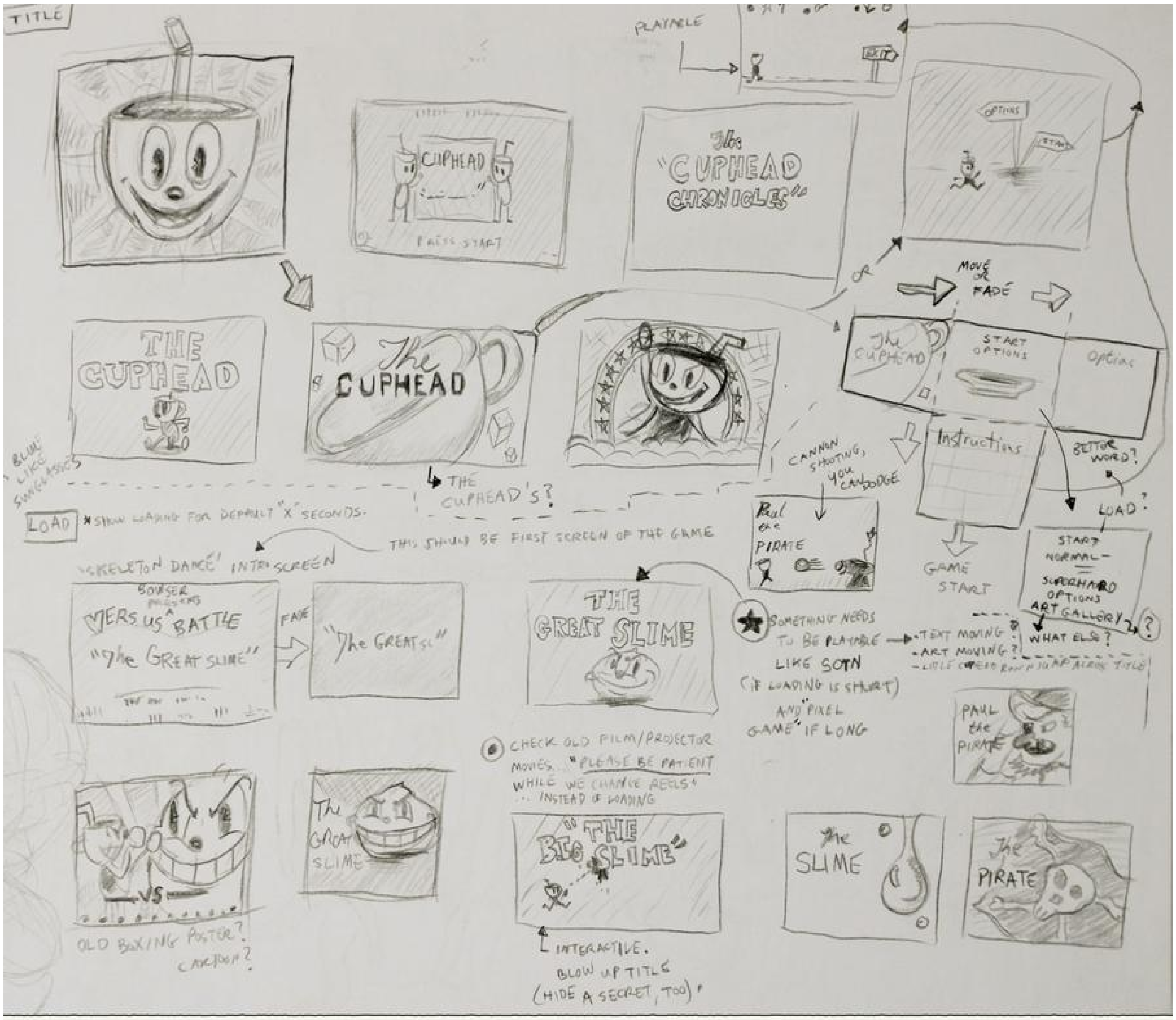
Upon finalizing the idea using a fully modeled storybook, we tasked physical designer Ali Morbi with actually producing and filming the prop. Initial conceptual work started by identifying how we wanted the final shots to look and working backwards from there. We decided on a prop and scene that was closer to Ub Iwerks's ComiColor cartoon introduction books as our visual reference. Iwerks used a hand-crafted book, which fit more in line with our theme (and budget), compared to the more ostentatious books used by the Disney productions at the time.

With our touchstone in place, lettering artist Warren Clark created the cover design by hand, then used computer modelling software to layout the typeface to fit the cover dimensions. From that file, Ali engraved the design into Masonite with a CNC machine in two passes: an initial rough pass to clear away bulk material and fill the holes with resin, then a second pass to cut into the resin for crisp lines.

Both the front and back covers were spray painted black and then the letters were meticulously hand painted on top. The lettering was so tiny, and required such fine detailing, that Ali had to construct special lighting in his studio to complete the final paint.

Having never actually bound a book before, Ali, assisted by background painter Caitlin Russell, researched binding techniques from online videos and examining old books. Settling on the glued (rather than sewn) "perfect bind" technique for its speed of implementation and consistent fall of pages, Ali created multiple test books to perfect the technique before binding the final art into the painted cover.

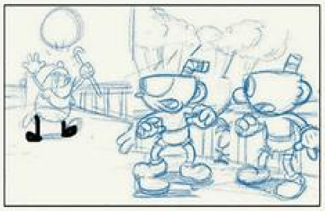
Filming was done in two parts, the opening/closing of the book and the pages turning. The book opening shot was filmed on the floor of Ali's living room, with Caitlin just off frame opening the cover. The first few pages of the book were taped together to achieve the proper page ruffle and give weight to the shot. The final shot of the page turns of the art pages was done in one uninterrupted take, then edited down in postproduction to be put into the game.

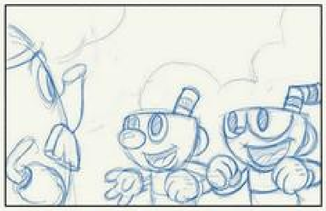

TITLE
CUPHEAD
PRESS START
PLAYABLE
EXIT
The "CUPHEAD CHRONICLES"
OPTIONS
START
OR
MOVE OR FADE
THE CUPHEAD
The CUPHEAD
The CUPHEAD
START OPTIONS
Options
Instructions
BETTER WORD?
LOAD?
GAME START
START NORMAL — SUPERHARD OPTIONS ART GALLERY
?
WHAT ELSE?
BLUR LIKE SUNGLASSES
THE CUPHEAD'S?
LOAD
* SHOW LOADING FOR DEFAULT "X" SECONDS.
THIS SHOULD BE FIRST SCREEN OF THE GAME
"SKELETON DANCE" INTRO SCREEN
CANNON SHOOTING, YOU CAN DODGE
Paul the PIRATE
BOWSER PRESENTS
VERSUS A BATTLE
"The GREAT SLIME"
FADE
"The GREAT SL"
THE GREAT SLIME
SOMETHING NEEDS TO BE PLAYABLE LIKE SOTN (IF LOADING IS SHORT) AND "PIXEL GAME" IF LONG
• TEXT MOVING?
• ART MOVING?
– LITTLE CUPHEAD RUNNING UP ACROSS TITLE
PAUL the PIRATE
CHECK OLD FILM/PROJECTOR MOVIES... "PLEASE BE PATIENT WHILE WE CHANGE REELS" ... INSTEAD OF LOADING
VS
OLD BOXING POSTER? CARTOON?
The GREAT SLIME
"THE BIG SLIME"
INTERACTIVE. BLOW UP TITLE (HIDE A SECRET, TOO)
The SLIME
The PIRATE

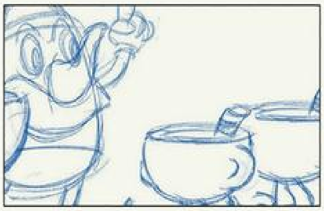
Cinematics

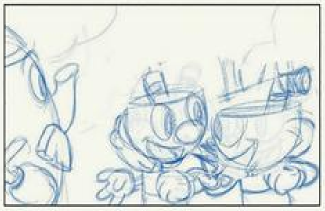
IN A GAME AS FOCUSED on fast-paced action and screen-filling boss battles as *Cuphead* is, we wanted to be careful not to overwhelm the gameplay with narrative—especially given the often story-lite cartoons of the 1930s to which the game was an homage. With that said, we definitely wanted to keep the stakes clear and present, and check in with major characters throughout Cuphead and Mugman's journey to let them shine and show them from different perspectives. Our answer? Tone-setting cutscenes after completing each Isle, designed to play out like miniature cartoon vignettes.

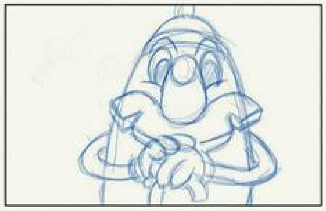
A collaboration with writer Evan Skolnick (who also provided text for the game's tutorials and NPC dialogue), these cinematics were a chance to give authentic period voices to our characters, and involved detailed research into dialogue from classic cartoons, early cinema, and general speech patterns of 1930s America. We opted to use on-screen text rather than recorded voices to allow players to fill in character voices with their imagination, and as a nod to early silent film limitations (in which text interstitials often told the story). Pictured above, you can see an early mind map of the game's story flow, during which time we had concepted the idea of using custom posters for each boss, as if every fight was its own animated short.

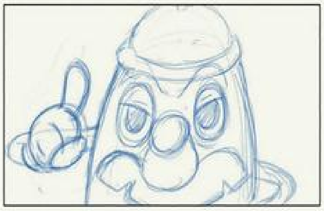


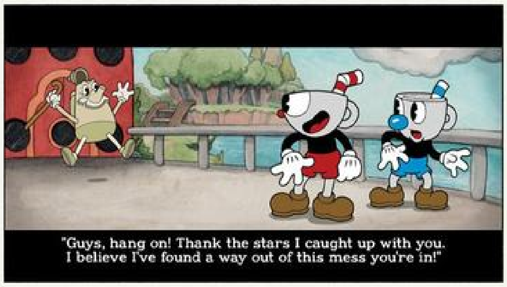


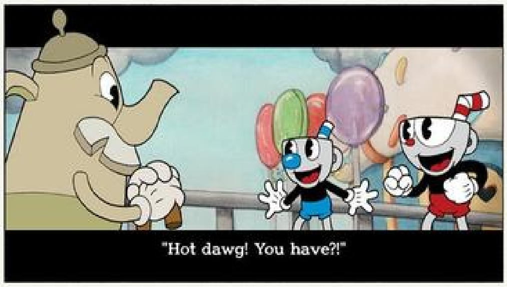


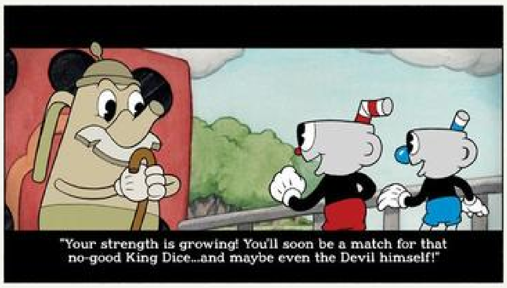


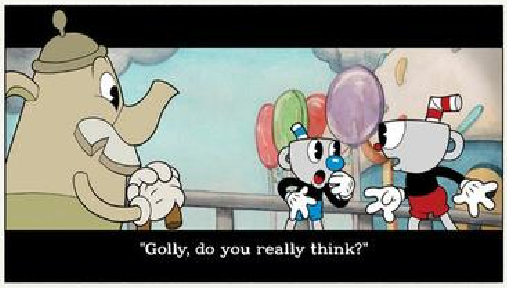


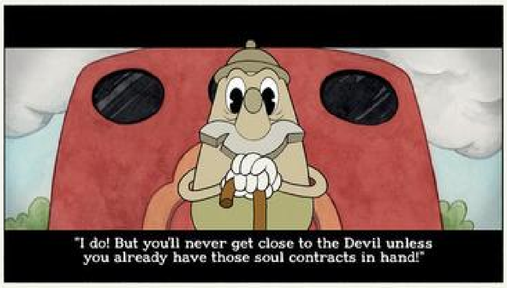


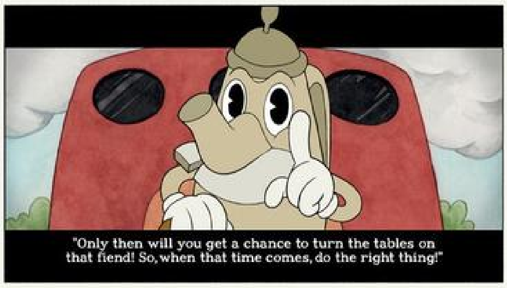

"Guys, hang on! Thank the stars I caught up with you.
I believe I've found a way out of this mess you're in!"

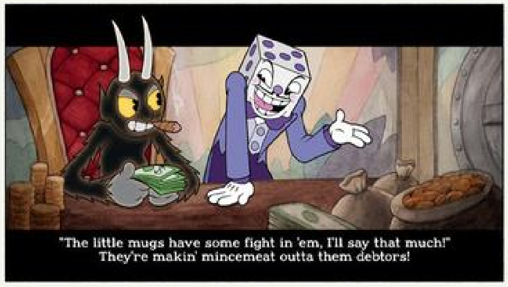

"Hot dawg! You have?!"

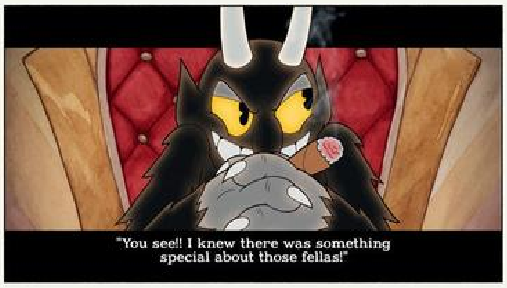

"Your strength is growing! You'll soon be a match for that
no-good King Dice...and maybe even the Devil himself!"

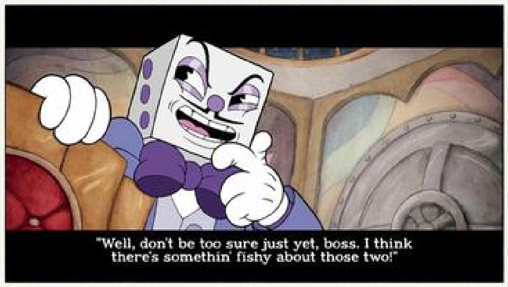

"Golly, do you really think?"

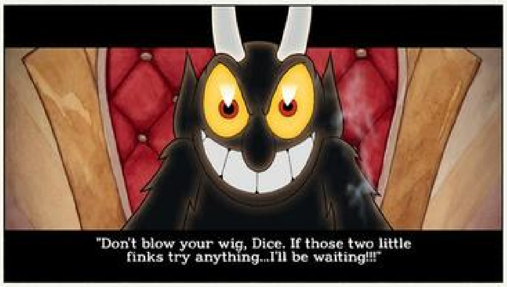

"I do! But you'll never get close to the Devil unless
you already have those soul contracts in hand!"

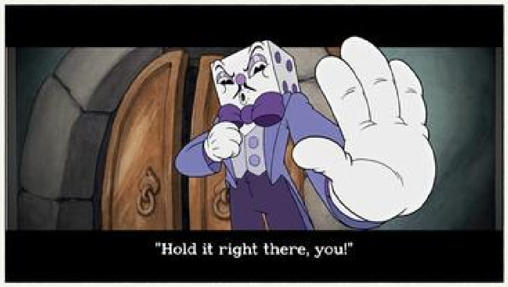

"Only then will you get a chance to turn the tables on
that fiend! So, when that time comes, do the right thing!"

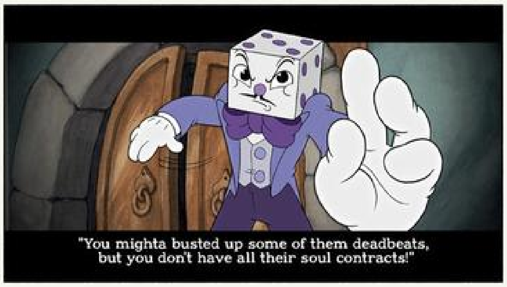

"The little mugs have some fight in 'em, I'll say that much!" They're makin' mincemeat outta them debtors!

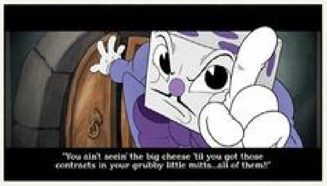

"You see!! I knew there was something special about those fellas!"

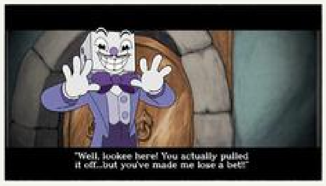

"Well, don't be too sure just yet, boss. I think there's somethin' fishy about those two!"

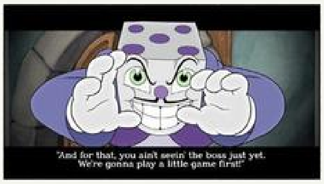

"Don't blow your wig, Dice. If those two little finks try anything...I'll be waiting!!!"

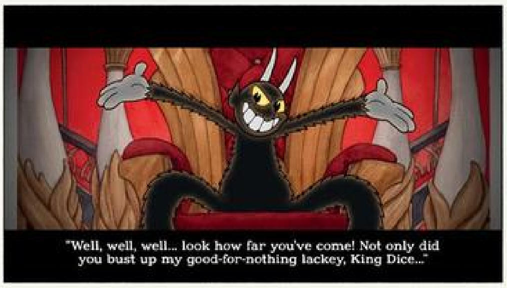

"Hold it right there, you!"

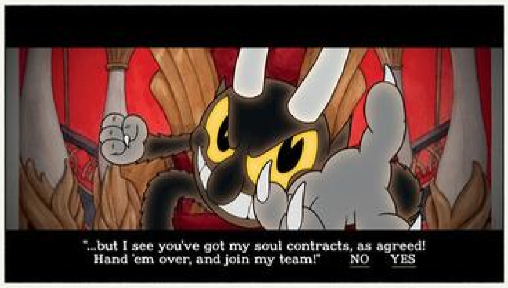

"You mighta busted up some of them deadbeats, but you don't have all their soul contracts!"

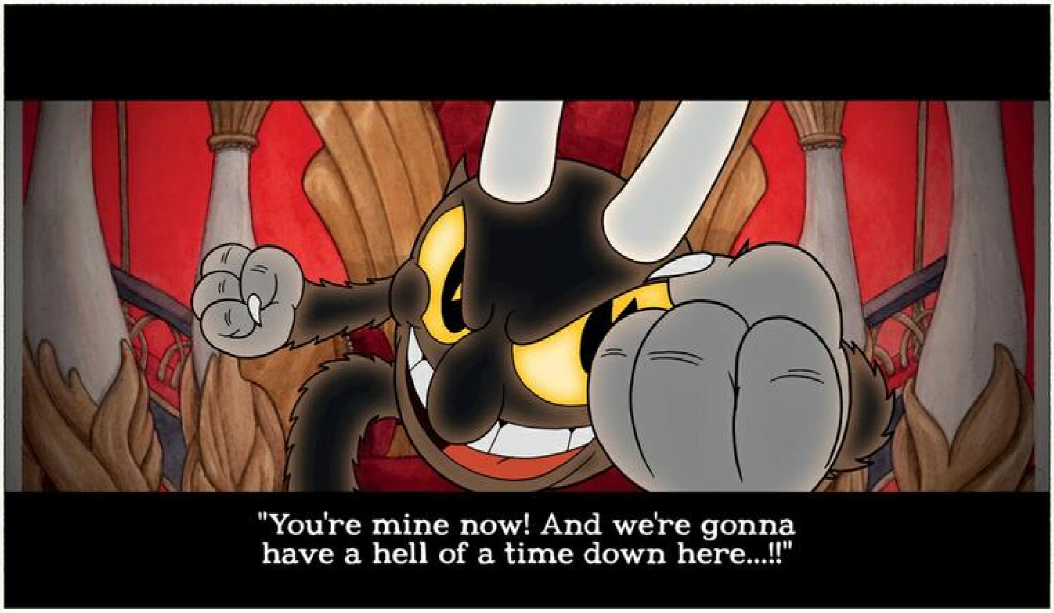

"You ain't seein' the big cheese 'til you got those contracts in your grubby little mitts...all of them!"


"Well, lookee here! You actually pulled it off...but you've made me lose a bet!"

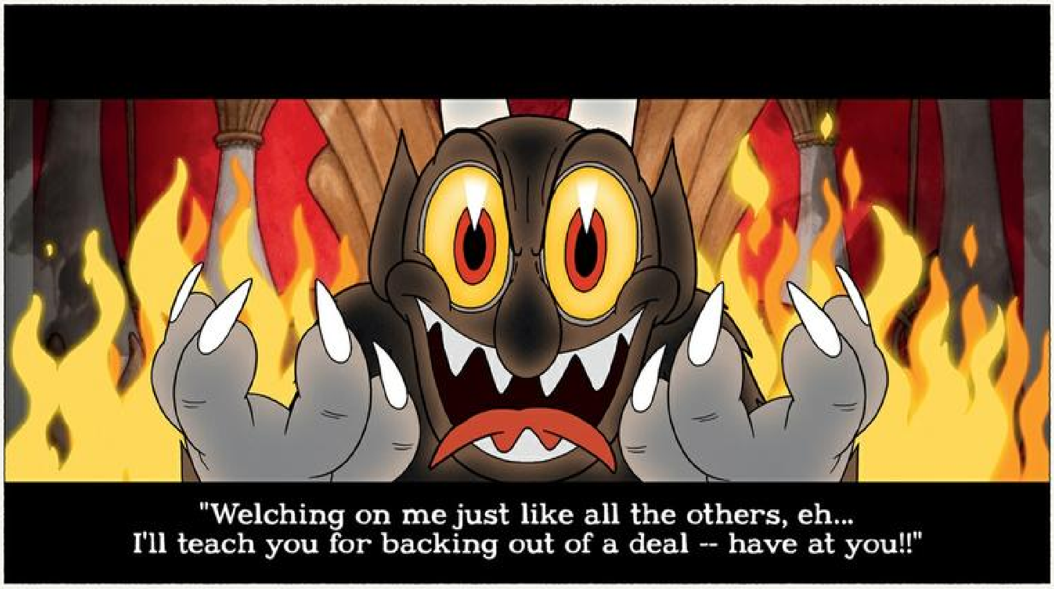

"And for that, you ain't seein' the boss just yet. We're gonna play a little game first!"


"Well, well, well... look how far you've come! Not only did you bust up my good-for-nothing lackey, King Dice..."


"...but I see you've got my soul contracts, as agreed! Hand 'em over, and join my team!"
NO
YES



"You're mine now! And we're gonna have a hell of a time down here...!!"



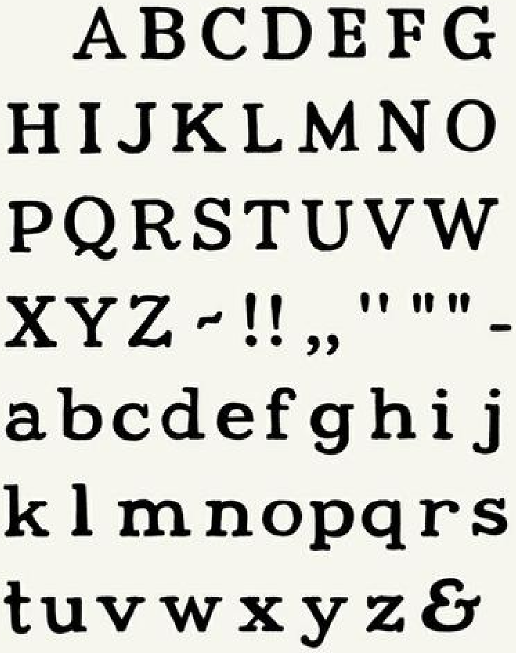
"Welching on me just like all the others, eh... I'll teach you for backing out of a deal -- have at you!!"

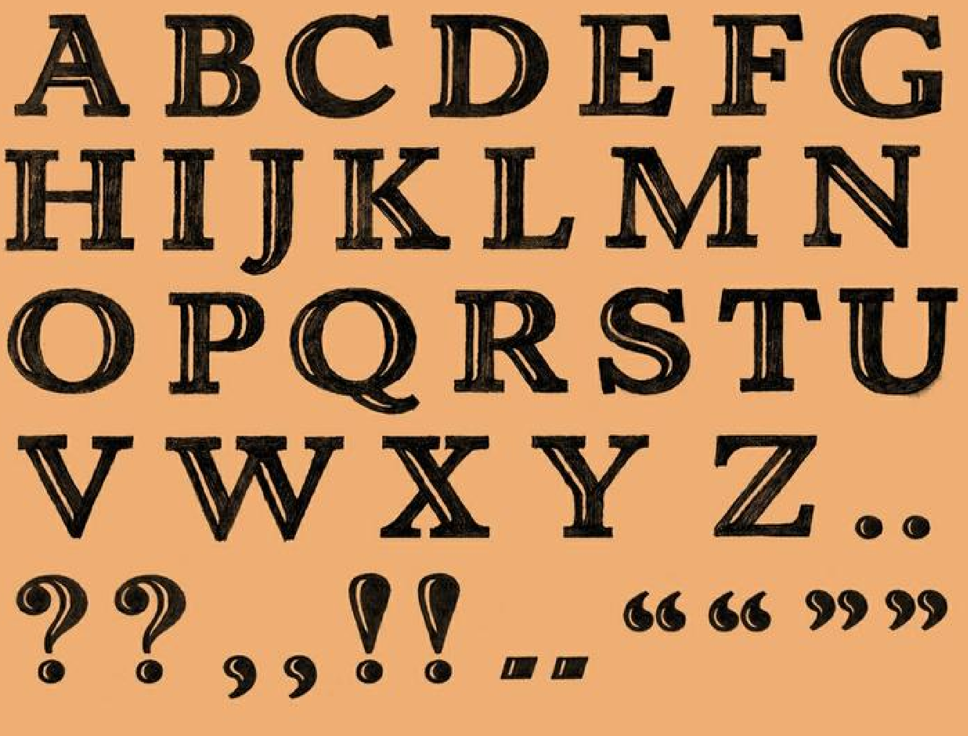
With all *Cuphead*'s cinematics, we really wanted to bring our characters' personalities to the forefront. Any time characters were speaking directly to the player, we played with perspective, adding extreme foreshortening—the technique wherein the parts of the character closer to the observer are presented much greater in size than they would normally appear—to amplify the feeling of presence. To punctuate their actions, we had characters literally jump out of the frame, overlapping the black letterboxing bars, to make them feel like they are coming out of the screen. Unlike standard game cinematics, we constructed and sequenced our cutscenes in real time, using individually animated characters in the engine. This allowed us to keep image quality much higher than if we opted for standard video playback.

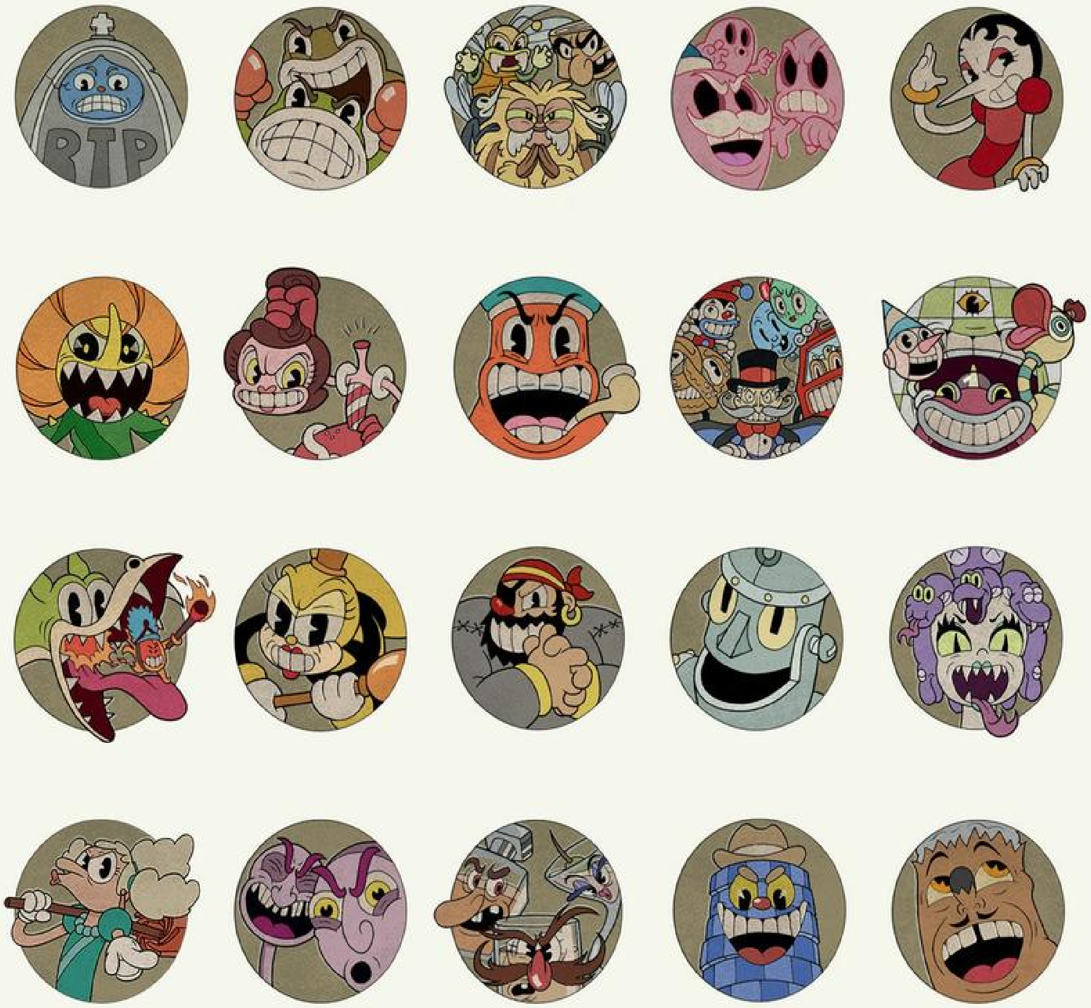
Typography

EVERY LETTER FROM EVERY WORD you would see in a cartoon from the 1930s is uniquely hand painted and this was a detail that we strove to match. *Cuphead* uses six entirely unique typefaces, all hand-drawn and hand inked to be used throughout the game. Under the guidance of typeface master and historian Mark Simonson and hand-lettering artist Warren Clark, we studied the letter art of posters, trading cards, and even one-off metal typing stamps of the 1920s and 30s to create our own letters to be as era authentic as possible.

To maximize the illusion of having a custom hand-drawn look of the lettering in the game, we made multiple versions of each letter in each of our custom typefaces, sometimes up to six per letter, adding slight variation to each instance. We then wrote a custom text handler for the dialogue in the game that would procedurally cycle through each independent version of a letter whenever it was used, to create the perception of uniquely hand-drawn letters every time they're displayed.







Death Cards

IS THERE ANY GREATER INCENTIVE to hit that retry button than seeing the smarmy grin and smug taunt from the behemoth boss that just bested you? Maybe seeing that you were just a pixel away from hitting that flag of success! Our "Death Cards" became the final brush stroke of the "just one more try . . ." painting.

Once we had decided that we weren't going to show the boss's health on screen during the actual fight itself, we started brainstorming ideas for how we were going to show a player's progress once they died. We had been tossing around the idea of an old-timey baseball card motif for the overall menu user interface and with the fight progression bar, we were able to have some kind of homage to the Marvel comics superhero collector cards, and their power level graphs, that we collected as kids.

For the boss portraits, we had always loved the postfight scenes with big, bold portraits of combatants throwing insults at each other in games like Nintendo's *Punch Out!!* and Capcom's *Street Fighter* series. Since the bosses of Cuphead morph and change so much from phase to phase, we ultimately ended up having to create over eighty different portraits and win quotes to accompany all of the bosses.

ACME
FLOUR

Chapter VIII:
The Delicious Last Course

AFTER *CUPHEAD'S* RELEASE in September of 2017, something peculiar happened: despite having spent so much of the last five years thinking about and dreaming up ideas for the game, we still wanted to go back to the world we had created as a team. With the wacky, wild, and wonderfully imaginative 1930s as our canvas, there were so many character ideas, cartoon references, and boss concepts that we never had a chance to explore. These ideas for characters and patterns, needling at the back of our brain and sneaking up on us during the day, eventually made their way into notebooks and sketchbooks, and soon enough, there were just too many of them to ignore. So we approached the team and proposed the idea of taking another trip together to the Inkwell Isles for one more grand adventure. This time, though, Cuphead and Mugman wouldn't be alone.

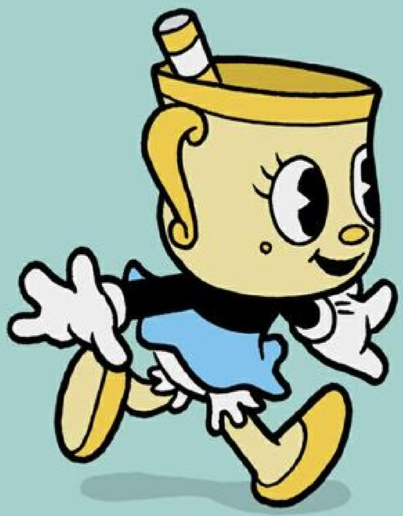
With their quest to defeat The Devil and save their souls already complete, we knew the prospect of going on another journey together was the perfect opportunity to introduce a third playable character. In television writing, it's often said that the best way to chart a course forward for a show and its characters is to carefully revisit what has already happened, as the answers for where things should go often lie in the details of what's come before. As we looked back at the story so far, and the world of the Inkwell Isles, we quickly realized there was more to learn about a mystical friend Cuphead and Mugman had made along the way.

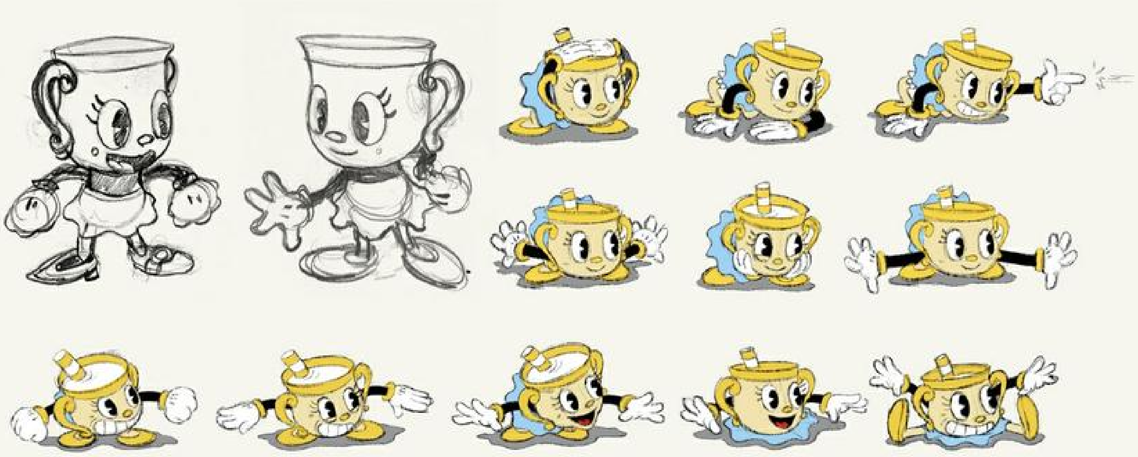
Ms. Chalice

INTRODUCING THE STAR OF the Delicious Last Course like you've never seen her before—the wonderful Ms. Chalice! Plucky, smart, headstrong, and curious are just a few words to describe our ancient ghost come back to life for a brand-new adventure.

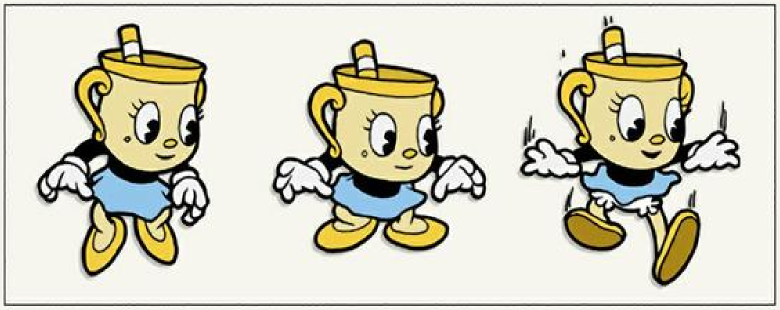
Looking to early forms of Minnie Mouse for inspiration, we took the key elements of the Legendary Chalice, her chalice handles, straw, and mole, and simplified the rest of the design down for her youthful form. Her body structure and dimensions mirror that of Cuphead and Mugman to maintain a consistency in control and gameplay design, while her ghostly lineage allows us to grant her interesting new powers and variations on the core ability set.

How Ms. Chalice has come back to life and what type of predicament she's dragging the cup brothers into is a mystery to be solved, but whatever the problem, Ms. Chalice is always ready for adventure!





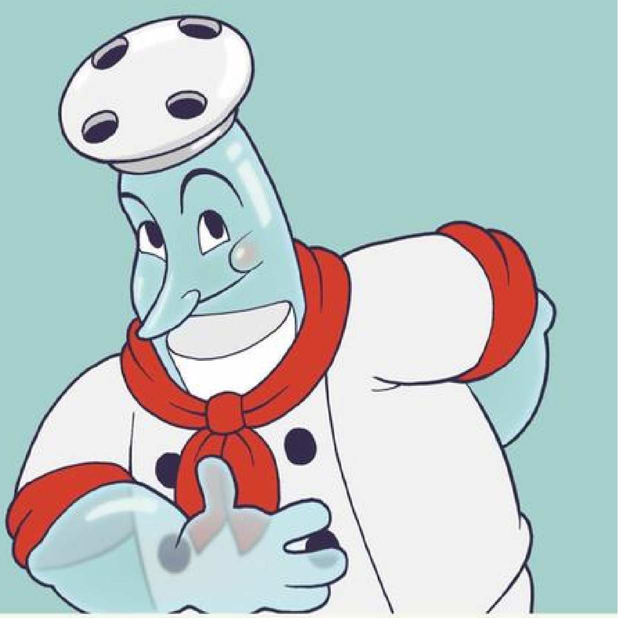
Ms. Chalice, unlike Cuphead and Mugman, has a double jump, with only her second jump curling up into the spinning ball form. Since her first jump remains upright, we've had to animate her entire jump cycle with her aiming in all possible directions. As such, Ms. Chalice's total number of animation frames is vastly higher than the original heroes.

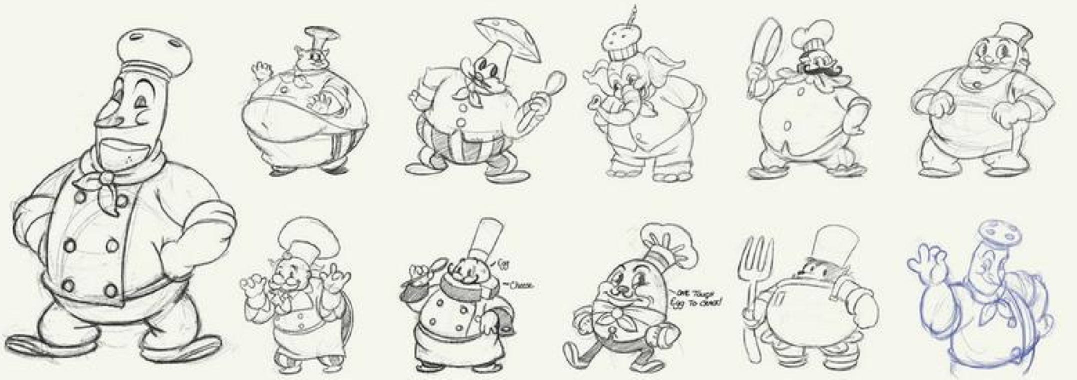


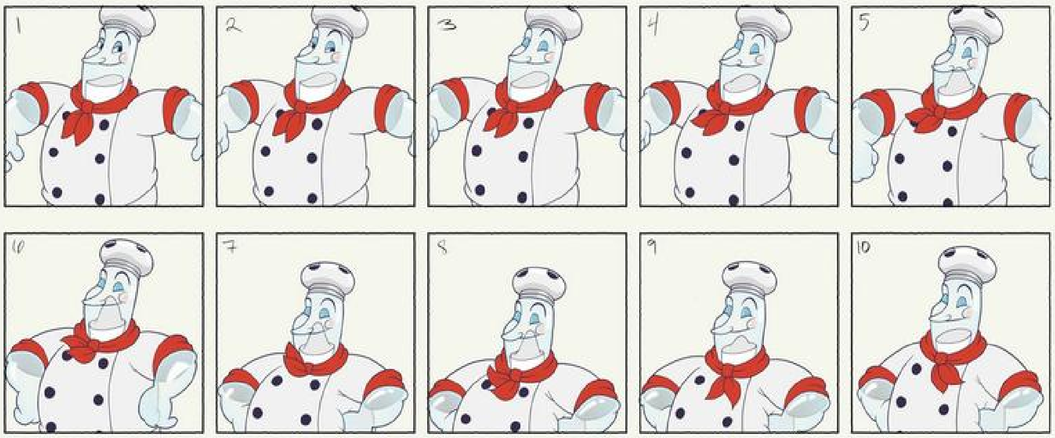
Chef Saltbaker

HERE TO HELP OUR HEROES on their magical quest across a strange new Isle, the jovial and garrulous Chef Saltbaker is the greatest culinary expert in all the land. As the Elder Kettle is to Cuphead and Mugman, the jolly Chef Saltbaker is to Ms. Chalice, a veteran guide able to grant magical powers with his wondrous baked goods.

With the food theme of the *Delicious Last Course*, we knew we'd need a chef for a lead. Looking to cartoon classics like Van Beuren's 1934 *Pastry Town Wedding* for inspiration, we wanted to come up with an iconic design that could carry the DLC's story and be a cheerful counterpart to Ms. Chalice's determination. From eggs to mushrooms, we tried a number of personified patriarchs, but we went with the saltshaker motif for both its metal topper doubling as a chef's toque blanche and the salt itself being the metaphorical key ingredient that makes a recipe work.



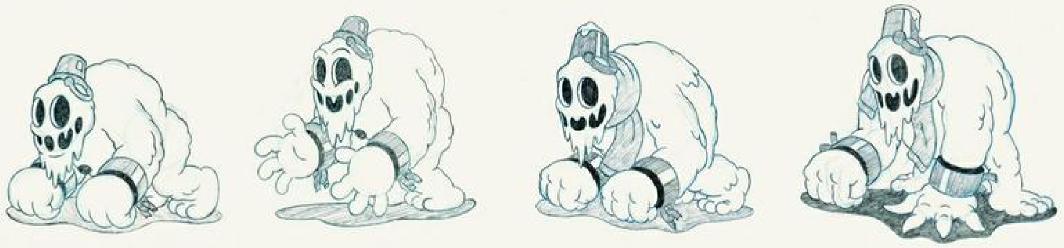

Egg
Cheese
One Tough Egg To Crack!

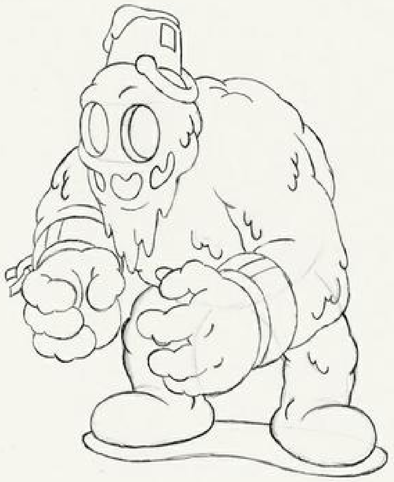


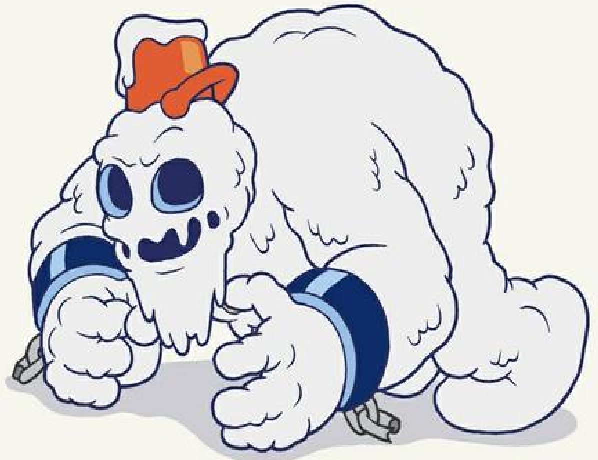
Untitled Snow Boss

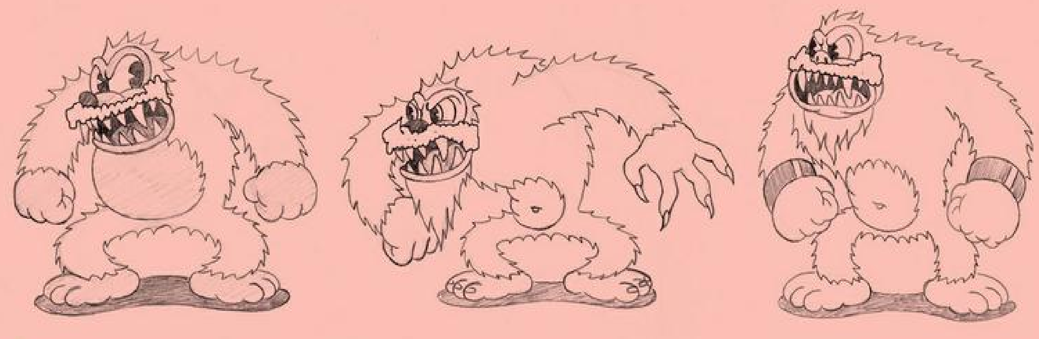
FOR BOSSES IN *The Delicious Last Course*, we looked to try to find overarching themes that were commonly used in the 1930s cartoons that we hadn't explored yet. From the Ted Eshbaugh 1933 short *The Snowman* to Ub Iwerks's 1934 cartoon take on *Jack Frost*, a monstrous personification of the cold has been a familiar foe to cartoon leads of the era. Wanting to mix those rubber-hose classics with our oft beloved fighting and role-playing game character inspirations, we looked to abominable beasts like Sasquatch from *Darkstalkers* and Umaro from *Final Fantasy VI* to add big personality to our giant snow man.

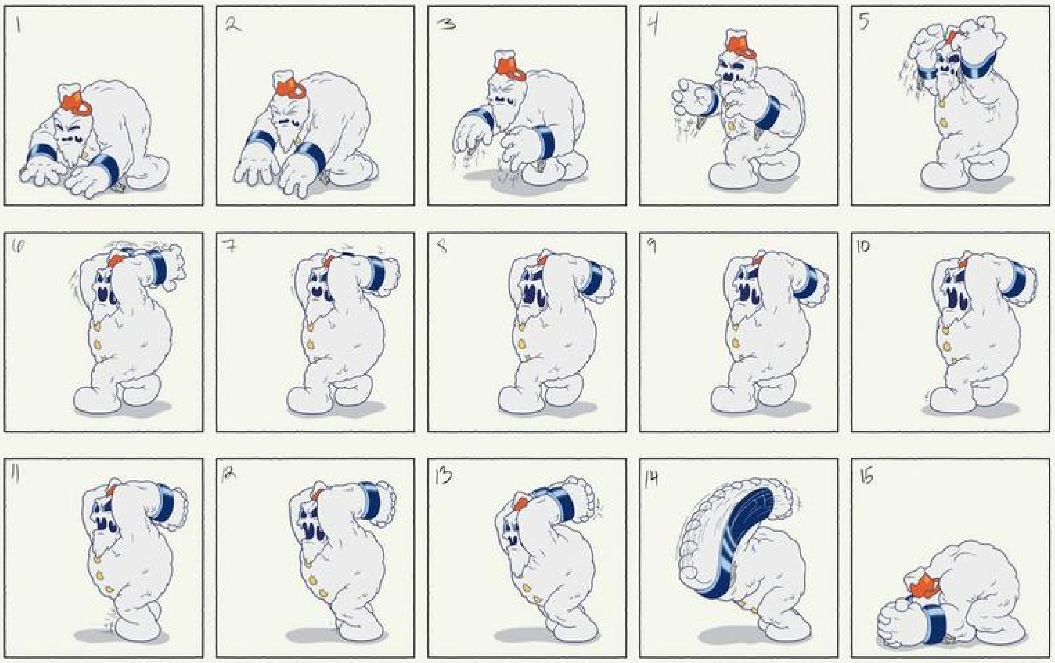
Initial concepts took on a more gorilla-like motif, similar to the creature from *Betty Boop's Hallowe'en Party*, but eventually we started moving in a more dark and twisted direction. As animator Jake Clark kept pushing further into a more sinister design, we started to find our snow beast with visual nods to ice bosses from the Sega Genesis *Ghostbusters* game. Adorned with shackles and topped with a mysterious orange bucket, the booming snow beast holds many secrets to his origin.

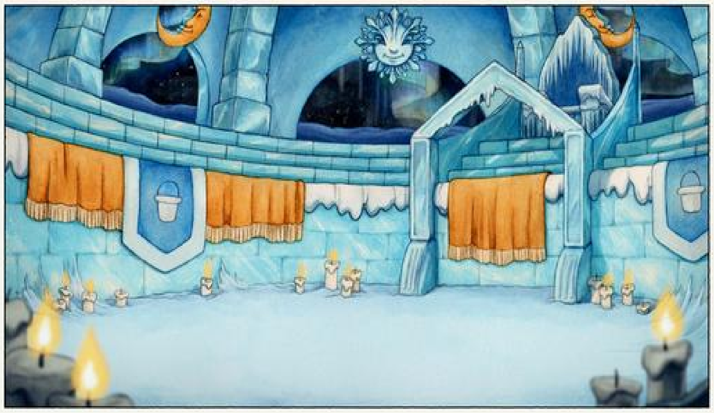


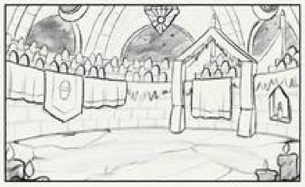


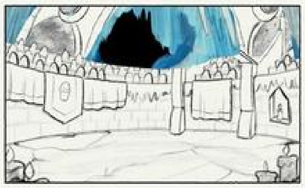












Untitled Snow Boss Background

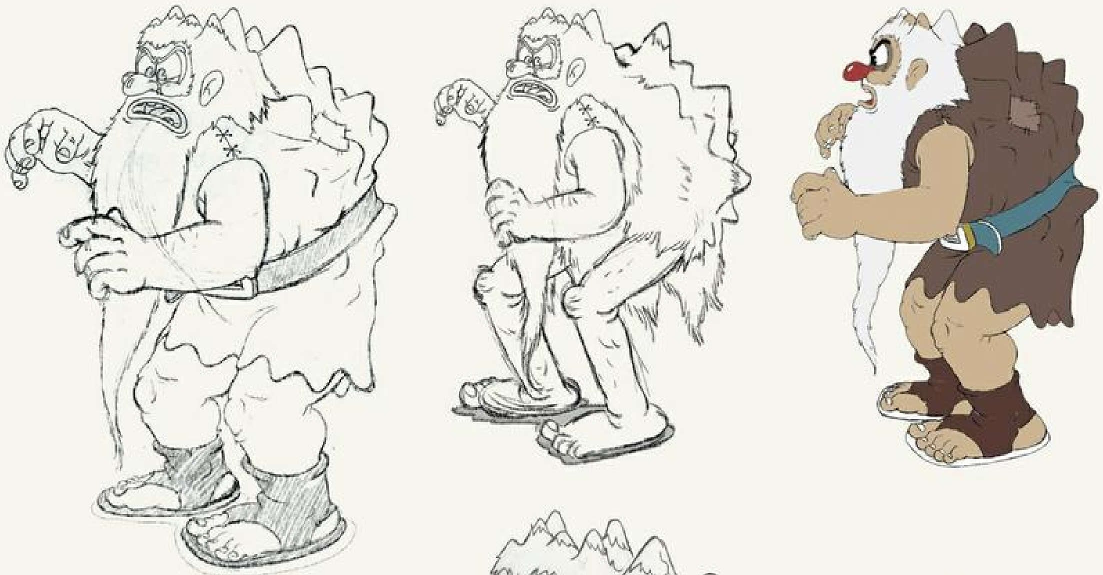
FROM THE TOWERING WALLS to the seat of a ruler, we wanted the background of the ice stage to look like you were embattled with a monster in the pit of a frosty Roman Coliseum. We wanted the denizens of this frozen building to have a culture all their own, so we looked to putting symbols and iconography around the stage to convey a mysterious cult-like intent to the conflict they cheer on.

With splashes of orange and yellow contrasting the cool blues of the ice walls, background painter Caitlin Russell studied the palettes, painting techniques, and shot framing used to create the snow and cold in the icy backgrounds of cartoons like Ub Iwerks's *Snowtime* and Disney's Donald Duck short *The Hockey Champ*. For our falling snow, we referenced the multilayered technique seen in the 1935 Silly Symphony *Three Orphan Kittens* to create an era-appropriate blizzard for any time the snow beast smashes the ground.

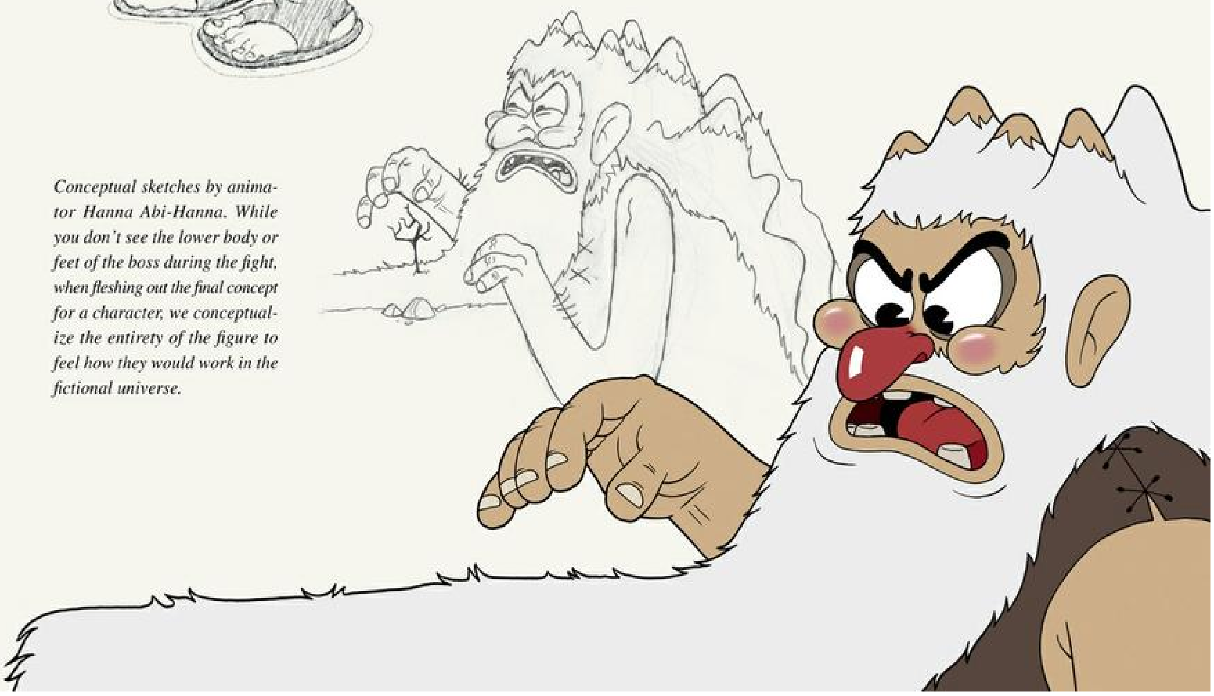
Untitled Mountain Boss

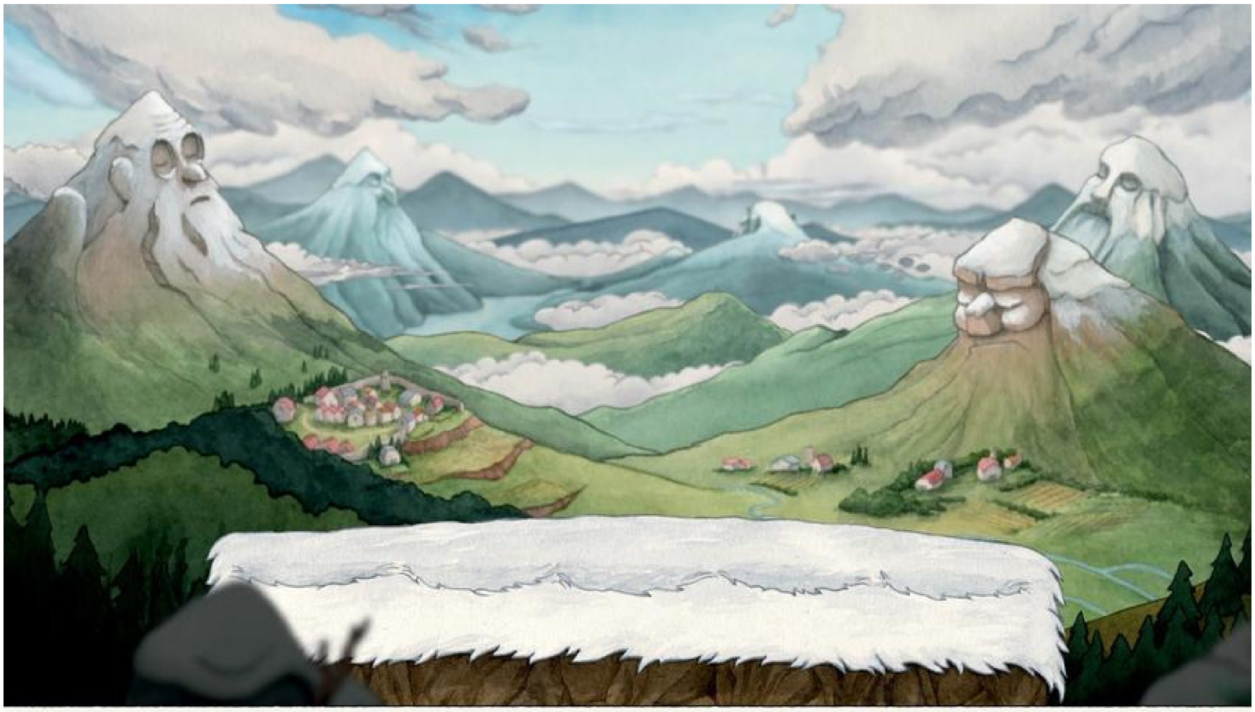
ORIGINALLY A DENIZEN HINTED AT in the Rugged Ridge stage, this part-man-part-mountain monstrosity is a member of a race of giants that literally become the mountains that form the landscape. Looking to expand the mythos of the Isles, we thought of these massive slumbering beings, so old and sedentary that they have calcified into stone, covered in greenery, and become one with the earth. Much to our bearded bruiser's dismay, a society of gnomes have made their homes among these mountains and they've been steadily mining the rocks, disturbing the sleep of the giant. He's awake now and he's not happy about it!

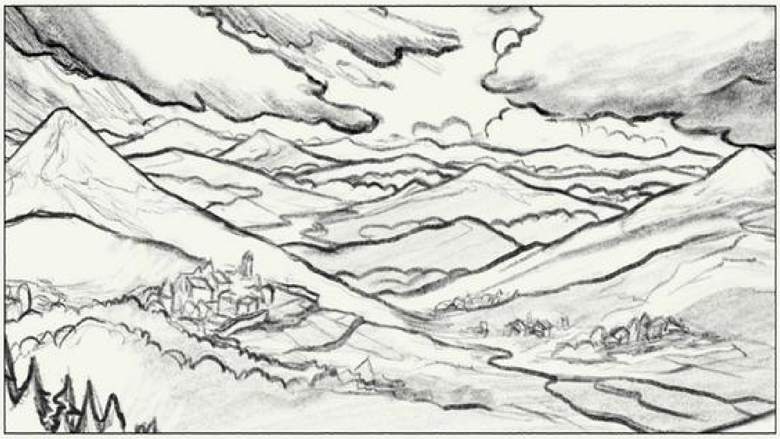
From early sketches to final animation, this boss changed very little. A callback to Fleischer's 1933 Betty Boop cartoon *The Old Man of the Mountain*, the mountain's detailing and expressions were also influenced by the giant from Disney's *Brave Little Tailor*. Giants and gnomes are common fairy tale cast members and we wanted to put our own spin on the classic big versus small contrast in a *Cuphead* boss battle.



Conceptual sketches by animator Hanna Abi-Hanna. While you don't see the lower body or feet of the boss during the fight, when fleshing out the final concept for a character, we conceptualize the entirety of the figure to feel how they would work in the fictional universe.



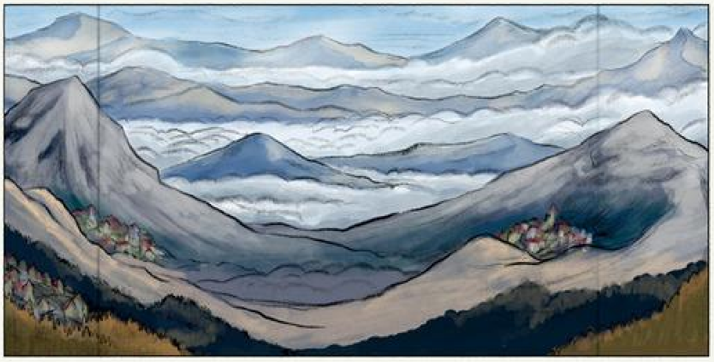


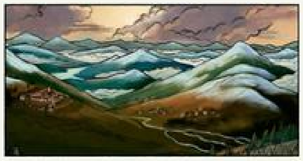


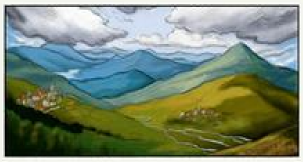
Untitled Mountain Boss Background

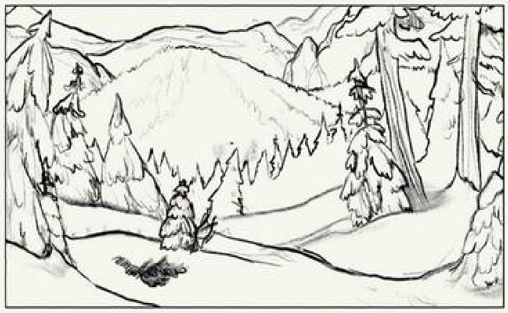
THE BASIC CONCEPT FOR this background went through a number of iterations to convey the story we wanted to tell during the fight and visually separate it enough from the previous mountainous backgrounds we had done. The core mythos was a group of gnomes literally living on our fearsome foe, so background painter Caitlin Russell originally theorized of the diminutive society carving their homes out the tree trunks sprouted from the mountain's earth.

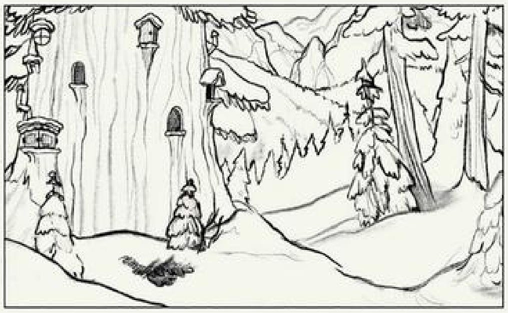
Later we moved to a depiction of a more traditionally settled town, seen from far away, for multiple reasons. Primarily, we wanted to give the habitations a sense of history, a hint towards the idea that the gnomes had settled on the mountain long ago, implying that our grumpy mountain man had been sleeping for even longer than that, stretching his legacy to feel ancient. Secondly, by reaching the landscape much further into the distance, it allowed us to create a believable sense of height, that you were actually fighting a giant atop a mountain towering over the basin below.

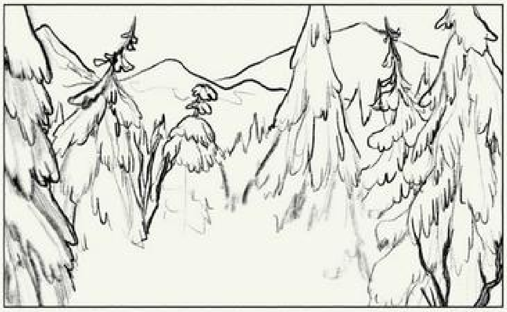


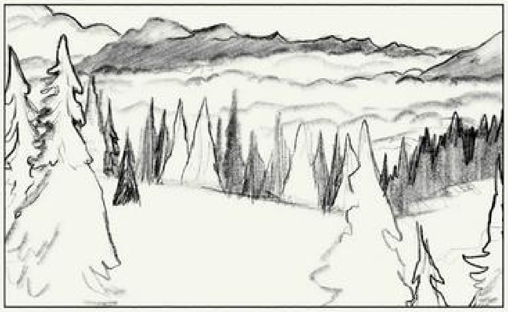


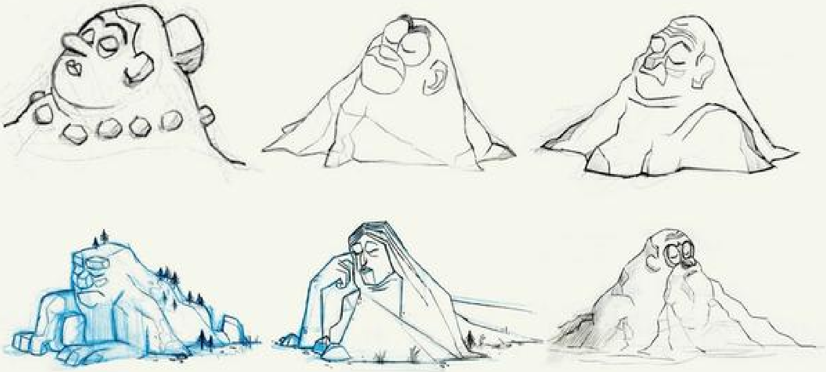




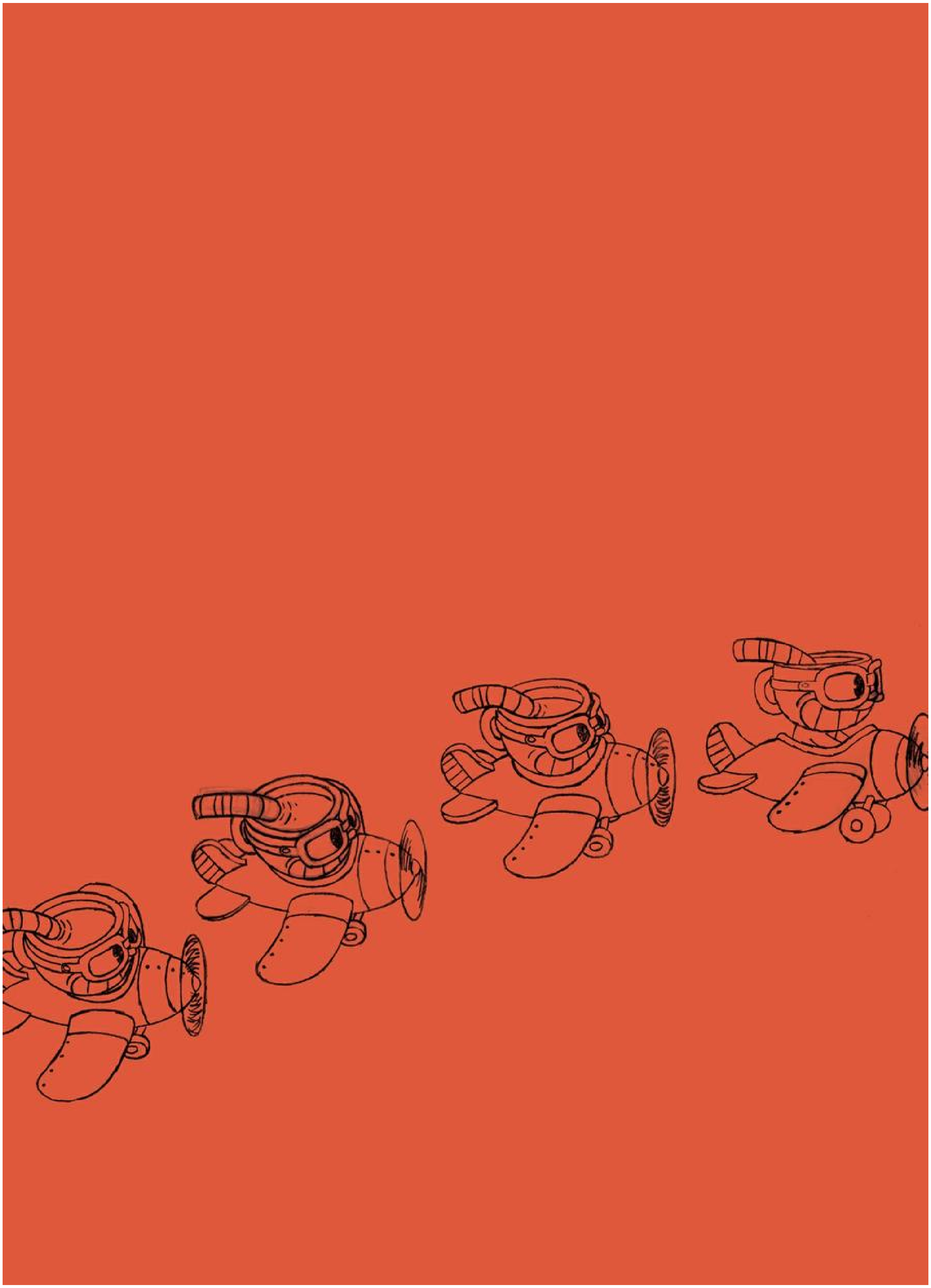


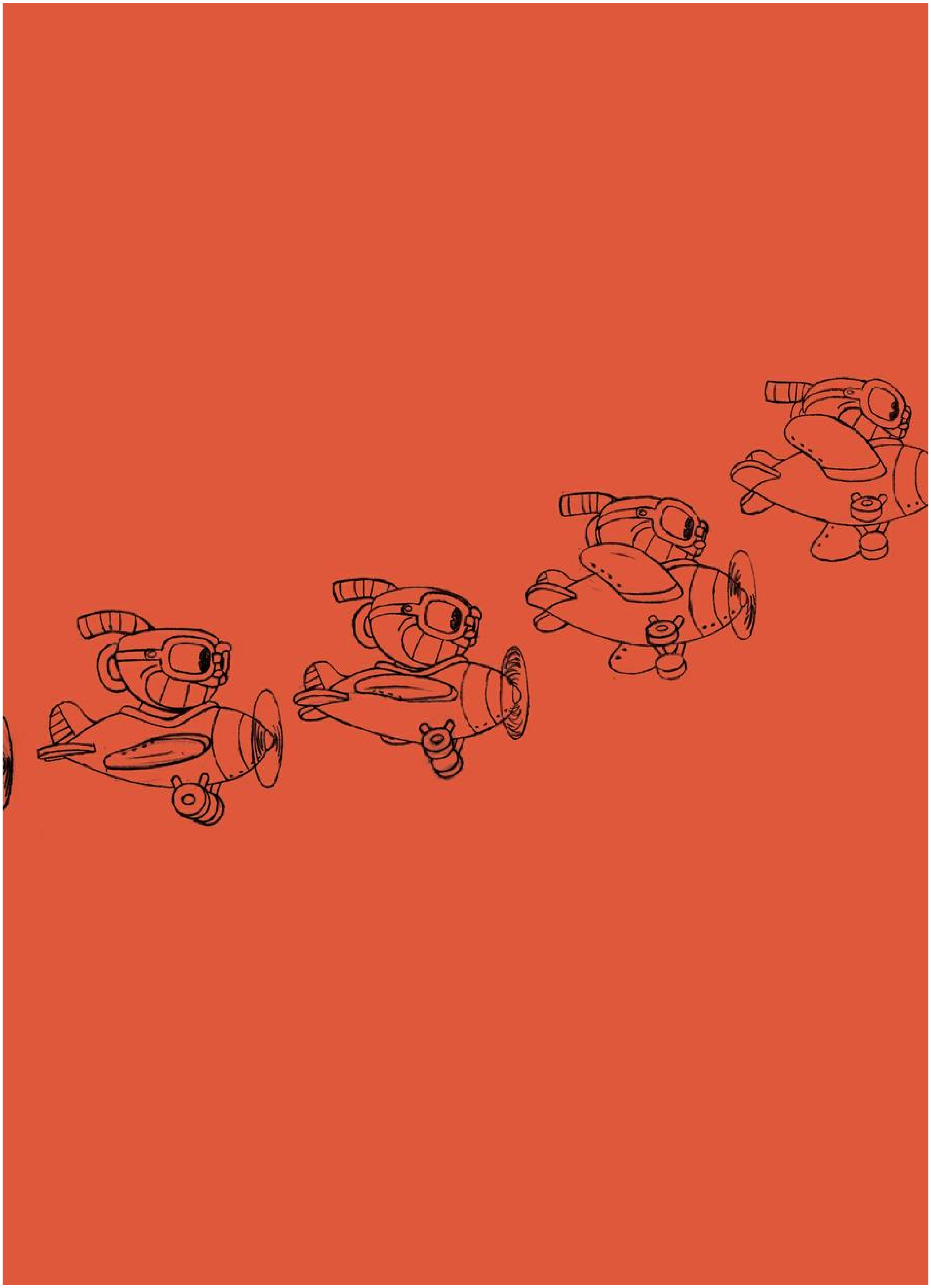


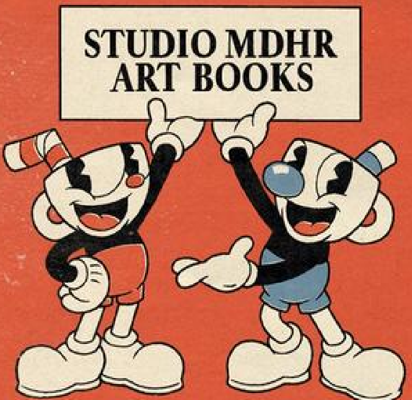




Working with painter Caitlin Russell, animator Hanna Abi-Hanna sketched some conceptual designs for different mountain people to place across the landscape. Initially, we were going to have this boss be the lone giant, but we felt it created a more interesting mythology to imply that there may be a whole race of such beings.



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